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Editor—HENRY E. SIGERIST

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SOME SOCIAL ASPECTS OF THE HISTORY OF PSYCHIATRY

WALTER BROMBERG

The social forces that were influential in the understanding of mental disease were and are numerous. It is not an exaggeration to say that almost every movement in history, every change in social attitudes, was reflected in people's thinking about insanity. Religion had a deep influence on the concepts of mental aberration, spiritualism unquestionably modified public and professional views for centuries, as did the revolt of science against religion. Economic revolutions with accompanying ideological changes had an effect; even wars and political campaigns stimulate thinking of mental disease.

The history of psychiatry cannot be considered chronologically. It evolved out of an overlapping series of concepts developed as the consequence of emotional reactions more than of intellectual interest as evidenced in the pure sciences. For the mental pain of looking into ourselves, of seeing ourselves " as others see us," drove men to find more lasting solutions for the universality of mental conflict and disease. Psychiatry was not a rationally developed science where one idea logically followed from another. It was, but is less so now, an empirically derived body of knowledge. This was partly because the impetus for understanding mental disease originated from the need to treat nervous disturbances and followed the direction indi-

cated by successful treatment. Therapy, empiric and haphazard, was the only interest of mental healers for centuries: the search for the cause of the mental disturbance was of lesser importance. This, with the exception of philosophers' attempts to understand the "soul" was broadly the case until the 18th century. With the beginning of interest in probing into causes of mental disturbances that replaced empirical, therapeutic dealings with the mentally sick, we can say that the history of psychiatry began. The shift from therapeutic interest to investigate interest which marks the onset of the history of mental disease has proceeded until now they are of almost equal rank.

Even as we look at the present face of psychiatry, we see many traces of these various influences that preceded the present state of our knowledge. Even today in an enlightened country, there are numerous phases of development reflecting the therapeutic interest and the investigative interest at the same time. Today in the same metropolis similar mental problems are dealt with by scientific psychiatrists in the mental hospital, by various schools of psychotherapy and psychoanalysis in the office of practicing physicians; by pastoral psychiatrists in church clinics, and by a large motley group of faith-healers and spiritualists. As a matter of fact, it can be said that psychiatry never really strayed far from its moorings in the mind of the public. Every man considers himself a psychologist whether this is in the form of " common sense " or a laboratory learned applied psychology. Important to our examination of the social aspects of mental disease then is the recognition that psychiatry has spread into areas not ordinarily considered as belonging to the physician. Where originally psychiatry meant preoccupation with insanity, epilepsy or nervous exhaustion, now it encompasses almost every aspect of human behavior of an abnormal type, and even as we talk, bids fair to spread over into the tremendous field of so-called normal behavior. The resources of a country are at last being recognized as consisting as much of the personality, emotions and intellect of its population as are the coal mines, the steel output, the car load index, and the physical manpower. Today psychiatrists besides concerning themselves with insanity, neurosis and organic diseases causing mental symptoms, are interested in character changes, psychosomatic interrelations, personal guidance problems, criminal and delinquent behav-

ior, industrial relations, child behavior problems, educational retardation, personality problems in the school, college and armed forces, propaganda and the psychology of publics under the pressure of war. Our government is beginning, for example, to requisition psychiatrists' knowledge to help them cut down the cost when soldiers and workers are stricken with neurotic illnesses following the defense program or war effort. Here is a field psychology and psychiatry has barely touched which has great economic and social meaning to the country.

Historically considered, the most powerful force that focussed professional and lay attention on mental problems was the humanitarianism of the 18th century. It is popular to say that Pinel started the revolution of psychiatric thought when he ordered the shackles removed from the insane at the Bicêtre in Paris in 1792. Actually there were many kindred spirits in those times who rebelled against the attitude that excluded the insane from treatment; that acknowledged them as belonging to the human race. That Pinel could put his humanitarian spirit into actions in an insane asylum was due to factors such as the emancipation of political control of institutions in France during the French Revolution. The Revolution in France was a boon to scientists. For one thing, official support was given to any serious scientist who was not opposed to the Revolution and announced his theories as of benefit to the people. For another, public opinion had carried great weight in revolutionary Paris with government authorities. The voice of the Parisian public was heard on every problem. It was the force of public opinion in Paris, as well as the lack of opposition of Professor Thouret and Dr. Cabanis, that gave Pinel his chance to put ideas long nurtured in an intelligent, sensitive person into practice. His striking of the shackles, immortalized in the painting by Robert Fleury, accompanied by general denunciation of indiscriminate restraint, would have been meaningless without his insistence on the " moral treatment " of the insane. What has not been stressed enough in medical history is that Pinel introduced the idea of *management* of mental patients:—persistent, painstaking supervision of patients as human beings. As Pinel himself stated it, " The bland arts of conciliation " were to be used in place of physical oppression and kindness in place of whips and iron

chains. The philosophical background which made the 18th century the age of enlightenment need not be rehearsed here; spokesmen of the movement, Rousseau, Voltaire, and the Encyclopedists are well known and one may consider the French Revolution with its insistence on bringing rationality into the daily life of the French, their government, their public attitudes, as a supreme expression of the century. With the postulate that man himself rather than God was the center of the universe, the atmosphere was more congenial for advancing the spirit of humanitarianism. It helped to remove the sense of guilt embodied in the doctrine of original sin with its indirect reflection in the feeling that the insane were damned.

It should not be inferred that Pinel's was the only voice raised against the old order in Europe. The heat of the French Revolution discomfited the less disturbed nations. England was not asleep to the danger of social unrest. The Quakers who put into action the world-philosophy of their founder, George Fox, gave explicit expression to a mystical religion-linked variety of humanitarianism in the establishment of the Retreat at York in 1796, organized with the avowed purpose of giving " Moral therapy, encouragement, and judicious kindness to mental patients." It must be remembered in this connection that the " moral " connoted " kindness." There was also Christian Reil in Germany, Eli Todd in Connecticut, and unsung heroes elsewhere who insisted on humane treatment of mental cases. Medical men were variously questioning the harsh treatment of emetics, caustics, and rough cathartics which was then in vogue in treating mental patients. One private controversy between Dr. Battie, a well known superintendent of a private lunatic asylum, and Dr. Monro, Medical Superintendent of Bethlehem Hospital, became so violent as to attract the attention of the House of Commons Investigating Committee in the 1770's. Monro considered Battie's use of " bleeding, blisters, rough cathartics, the gum and foetid anti-hysterics, opium, mineral waters, cold bathing, vomits " akin to madness and he was able to hale Dr. Battie before the House of Commons committee on the regulation of madhouses. Monro was on the investigating committee, and the evidence which he elicited from Battie contributed to the Bill of 1774 which brought private mental institutions within the regulatory power of the state. Haslam, an

apothecary of Bedlam, supported his chief. He for one did not like the attitude of the gaping crowds who paid for an opportunity to see the howling madmen. " It should," he wrote, " be the object of the practitioner to remove . . . disease rather than irritate and torment the sufferer." The public was becoming aware that the treatment of lunatics existed as a real problem. A circumstance which stimulated public interest was the recurring insanity from which King George III suffered. In 1789 the House of Commons held an investigation into a controversy between the experts regarding King George's chances of regaining sanity. The report was published at two shillings a copy and had a wide sale. The public in England demanded to know what was going on in her mental institutions. As the century advanced a series of governmental investigations occurred in England betraying this interest. In 1813 a House of Commons investigation was ordered as particularly revolting stories came to public attention at the Lancaster Asylum. In 1815, again in 1820, the Lincoln Asylum underwent official investigation. In America Dorothea Dix started in 1841 to spur several states to revise their systems of treatment of the insane and forced humane management like a breath of fresh air into the poor houses and asylums. State after state studied, then reorganized its asylum system under her whip-lash. By 1864 the scientific validity of humanitarian ideas was established. The work of Gardner Hill at the Lincoln Asylum in England in doing away with restraint was hailed as a tremendous advance, " the very greatness and simplicity of which almost enshrouds its meaning," though Moreau De Tours was moved to remark that the complete removal of restraint for madmen recommended by Hill was, " an idea entirely Britannic." Under the stimulus of such individuals as these, the problem of the insane moved further into public view, forcing its attention on law-making bodies. This was another evidence of the tendency of the early 19th century towards self-consciousness which flowered into social consciousness.

In a word the humanitarian movement arising out of new social conditions and therefore from a new philosophical concept worked its wonders among the insane through a few individuals supported by a more or less aroused citizenry. As the notion caught the imagination or pricked the conscience of the public and legislative bodies,

the public participated more and more in the care of the insane. The history of this development in America has been well presented by Albert Deutsch in his " Mentally Ill in America." Gradually actual administration of the institution reflected this new attitude; whereas individual overseers or even alienists in charge of hospitals once were the administrative authorities, control later went over to commissioners, state departments of mental hygiene, or boards of trustees who represented cross-sections of the business and professional world. The spread of social consciousness concerning the destitute and the poor, first through private charity and philanthropy and finally through State controlled agencies, demonstrates this same tendency to master one's fate and the fate of the individual as a social unit through giving serious attention to inner as well as external problems of life. At the same time the mental hygiene movement, to be discussed later, which started in 1908 consolidated and brought home to the public the fact and value of its vital participation in the establishment and function of our modern mental hospitals. Today the diversified use of psychiatry, organized under state, municipality, or hospital direction in its scientific form, carries the original germ of humanitarianism derived from the Age of Reason which flowered in the 18th century.

Another potent force during the 19th century giving psychiatry meaning and breadth was that of dynamic psychology. In this inquiry into the development of the idea of dynamic causes for mental diseases, we may be tempted to accent the contributions of individual men. These physicians were men and as such susceptible to social influences, but like the individualists that scientists are, were often comparatively remote from the pressure of public opinion. To recall to your memory all the medical men and neurologists who made incursions into the perplexing field of mental disturbances would be a monumental task, outside the scope of this paper. I wish only to point to a few key figures and to examine, if possible, the social influences which probably contributed to the development of their thinking. At the outset the name of Franz Gall comes to mind: the man who is credited with important early discoveries relating to cerebral localization and discredited with the art of phrenology. Although phrenology is a historical curio today the modern neuro-

surgeon who probes into delicate brain tissue and restores disabled patients to health, owes much to Gall's researches.

Gall started the measurements of the human skull and the lobes of the brain while still a medical student in Vienna in the 1790's. What may have impelled him to study was a deep inferiority feeling about his own body. Gall was a short man with a tremendous chest, a large head and bulging frontal bossae. He was cursed with a poor memory and through the rationalizations which neurotics of all times have sought in order to ease themselves of their mental conflicts or deficiencies, he conceived the idea that an excellent verbal memory was to be found in skulls different than his own in shape. Specifically he found, basing his observations on fellow students who recited brilliantly, that prominent, bulging eyes were related to good memories. Bulging eyes, Gall reasoned, meant prominent frontal lobes of the brain. From casual speculation, he moved to experimental observation, spending years in the jails, schools, and hospitals of Vienna, measuring the prominence of various bumps of the skull of his subjects matching his discoveries with clinical histories and post-mortem examinations. The laborious dissections of Gall which took a score of years to develop, produced neurological knowledge of lasting value regarding medulla oblongata, the fibre paths in the brain, and so on. But Gall tried, and this was his error, to relate his neurological findings to the theory of cognition held by psychologists in his time. Bluntly it can be represented by saying that human thinking was conceived of being built of sensations and perceptions to which were added mental reflections to form thought. From this developed the phrenologic system with its thirty-five knobs on the skull each accounting for a mental faculty like philoprogenitiveness and amativeness, etc. Parenthetically it might be pointed out that the seriality of the thinking behind the " faculty theory " tended to support Gall's methodology. From sensation, to perception, to reflection it was but a step to thinking in terms of mental faculties and brain and skull substrata thereof. In phrenology—Gall called his work *craniology*—the tendency to seek easy relationships between man and the supernatural was fostered.

In spite of the individual, or shall we say neurotic, factors impelling Gall in the direction his researches took, there were influences in

the intellectual atmosphere that moved him. The mystical heritage of the German speaking peoples was in contra-distinction to the clarity and materialistic purposiveness of the French. Germany was not without her clear-headed reformers, but the medieval religious concepts which were swept aside by the French Revolution lingered in many minds. Humanitarianism combined with objectivity was in no degree the force in Germany that it was among the French and the English. It is true Gall's theories were in line with that of the French sensationalists, but he developed them in a direction which savored of mysticism. After Gall left Vienna under pressure of the Austrian Court, his scientific confreres in Germany hailed his scientific work. The choice between continuing his anatomical demonstrations and supporting phrenology was solved by Gall in favor of the latter. Dr. Gall succumbed to the enthusiasm of a public to whom science was an entrancing toy. Popular interest in scientific wonders was widespread in the last quarter of the 18th century: witness the excitement over the Leyden jar and other wonders of electricity, the possibilities of the balloon, the human effects of magnetism, Mesmer and this magnetic fluid, and so on. That was an age where quackery paid higher dividends in public acclaim and money than did strict adherence to scientific work under the patronage of royal personages. Gall, driven by the wish to unite cerebral anatomy with the human spirit was ambushed into phrenology as much by the social atmosphere in which he lived as by his own mystical-scientific tendencies. One may well wonder whether scientists and the public could be so clear-headed in an atmosphere charged, as is ours today, with the tensions arising from anticipated vast social and economic changes as was that of the first part of the 19th century. Political events presented problems for immediate solutions that rocked the implanted social attitudes among the masses. Were kings to be replaced by a rational form of government? Were classes to stand one in luxury and the rest in poverty? Were men created with reason sufficient to achieve their satisfaction in this world or was the order of society ordained by God, forever immutable? These pressures could well have pushed mysticism and transcendentalism to the fore.

In spite of the spread of the phrenologic rage, which started as a scientific pretension and ended as one of the novelties of the late 19th

century, Gall's work gave the impetus to modern neurology. Nevertheless the next half century saw a series of investigators and clinicians examining the brain of animals or working over cases of head or nervous system injury in humans. In this series of neurologists were many illustrious names such as Broca, Weir Mitchell, Charcot, and others. Standing above them all was Jean Marie Charcot, who started his career in 1862 at the Salpêtrière, devoted himself to the analysis of the palsied, tremulous, epileptic patients that thronged the halls of the hospital. Pioneering in that no man's land of medicine was a gigantic task then; even today neurology is a most intricate domain. It is hard for us who are living in a generation that recognizes neuro-psychiatry as a science to realize how great a furor was elicited among medical men when the discovery was made that the reflex kick of the leg could be used in the diagnosis of the dread general paralysis of the insane. In the 1870's and the 1880's, the most astute neurologists spent hours trying to decide with the help of this reflex whether a palsied arm or leg was hysterical and would miraculously clear up, or organic and drag along until death. With these problems Charcot labored and in attempting to determine an hysterical from an organic affliction he stumbled upon hypnosis. This became his scientific waterloo, yet it provided a great stimulus to the dynamic concept of mental disease. Charcot proved to his own satisfaction that hysterical symptoms could be artificially produced in the patient through hypnosis. Conversely, hypnosis could only occur in an hysterical individual; hypnosis and hysteria were opposite facets of the same condition. Although Charcot's dictum was disproved by physicians who found that anyone could be hypnotized, it led to the concept that hysteria was a condition in which emotions could produce bodily symptoms without the conscious knowledge of the patient. From this followed the notion of dissociation, or the split of the mind, in which a bundle, so to speak, of forgotten ideas with strong emotional content are expressed on parts of the body, unknown to the rest of the waking personality. The idea that a kind of mental activity went on in the dissociated area of the mind, the subconscious or unconscious portion lay at the base of modern psychopathology. We need not trace in detail the evolution of that idea through Charcot's hypnosis, through Bernheim and Leibault's sug-

gestion, the work on dissociation by Janet, or the studies of dual personality by Prince. We must come to rest, however, on Freud whose independent thought and persistent work illuminated the workings of the subterranean malestrom which is our unconscious. Of his work and struggles everyone is aware. In his first assays with hypnosis of patients, Freud discovered the effect of repressed sexual experiences in neurosis. Later Freud and his followers illuminated the mechanisms by which the ego reacts to frustrations and insecurity. Out of this arose a " depth " psychology of the human personality. By 1920 psychoanalysis had developed into a method of investigation of mental life of infinite value for psychiatry in general and a specific technique of treatment capable of eradicating the roots of neurosis. Dynamic psychology was by now firmly intrenched in psychiatric thinking and showing a tendency towards being accepted by laymen, especially those working with children as in the educational field. The force that carried the message of dynamic psychology into the lives and thoughts of people was the mental hygiene movement. Its source was the zeal of Clifford Beers and the plea of Adolf Meyer for a more intelligible attitude toward the insane patient. Meyer's teachings were in reaction to the universal psychiatric preoccupation with diagnosis that followed the brilliant work of Emil Krepelin in organizing a comprehensive system of psychiatric diagnosis. Meyer acutely pointed out that diagnosis was the " fetish of medical men," sidetracking attention from the organism as a whole which was suffering from mental disturbances. This viewpoint was called psychobiologic. Meyer saw the need for understanding not so much the mental picture unrolled before the psychiatrist, but the way in which the organism reacted to life situations in terms of specific life experiences. This viewpoint necessitated a widening of the field of psychiatric thought out of the hospital into the home, the family, the neighborhood. This gave an impetus to the school of psychiatric social work, and at the same time laid the groundwork for the permeation of the mental hygiene movement into the public mind. The mental hygiene movement which started officially in 1909 spread during the next fifteen years, under the leadership of E. Southard and then of Thomas W. Salmon, and finally of Frankwood E. Williams. It is difficult in a brief statement

like this, to tell what mental hygiene is and what a force it has been in the community for the past thirty years. It would be valueless to give statistics. One has to look into the minds of the people to see what changes have been wrought in their notions of mental illnesses. The movement wishes to familiarize people with the results of scientific study concerning mental disease, just as the public had been educated in the new knowledge of tuberculosis or diet. Public attitudes toward physical diseases have changed mightily during the past half century. Scientific education has made it commonplace to regard infection as due to germs, and hygiene has taught people the value of air, sunshine, vitamins and basic diet requirements. Borrowing a page from these movements, mental hygiene has asked the public to look objectively at the emotional forces underlying mental health and mental disease.

The application of principles of dynamic psychology in mental hygiene and intensively in psychoanalysis was the sustenance on which modern psychiatry moved. It would be worth while to examine into social and historic forces that allowed this development. The socio-intellectual upheaval of the 19th century immediately comes into view. This was the result of the struggle between religion and science. In it religion lost its hold on philosophy and psychology by being forced to drop moral values which had been attached to mental operations. The very term, " Moral Philosophy," the older word for Psychology, signified this strong ethical connotation applied to concepts of emotional and mental life. The blow that indirectly dispelled the moral connotation of psychology was the scientific success of the evolutionary doctrine. Darwin, and those who followed him, provided the intellectual freedom which the scientific world needed. It chiseled off morality from scientific concepts in a cold-blooded way, allowing man to investigate the soul of his fellowmen. In 1859, with the publication of Charles Darwin's, " Origin of the Species," began the active preoccupation of scientists in man as a creature of the earth. It was this new viewpoint which paved the way for the dynamic concepts of psychiatry.

Let us illustrate the change in the scientific outlook by relating an experience from the life of Galton, the famous English eugenist. Galton was a cousin of Darwin, and like many other young English

gentlemen, he was a dabbler in science. It was customary for the young men of the new aristocracy to justify their social superiority by contributions to the national treasury of knowledge. The expanding British Empire grew on the tripod of the intrepidity of its explorers, the business acumen of its builders, and the grace of God. The missionary was hard on the heels of the explorer and the scientists were not far behind. As new areas were brought into the Empire efforts were made to impart Christianity to natives. The success and failure of these efforts and contacts gave impressions to the conquerors which led to their puzzling about the different culture, customs, and habits of the natives. Inspired by these humanitarian feelings and by their newly aroused curiosity, the Society of Friends organized an association called the Aborigines Protective Society, for the purpose of aiding the natives of Britain's expanding colonial empire. Its secondary purpose was to study the habits and customs of the native blacks with whom the missionaries were at work. Politics inevitably reached the Aborigines Protective Society and its membership split on the question of practical help for the blacks of South and Central Africa. A majority of the Friends were content to rest their interest on the Biblical doctrine that God in His wisdom had created the various races of mankind; hence the best that decent Christians could do was to give the "inferior races" religious guidance and practical aid. A minority in the Aborigines Protective Society was dissatisfied with this limited view, and preferred to study the ways of native peoples and note those differences in body and mind that separated them from the white peoples of Europe. Out of this schism arose the Ethnological Society, composed of the student group, and the Anthropological Society whose membership was composed of the religious elements in the parent Aborigines Protective Society. Controversy arose as to the place of the Negro in the scale of humanity. The move toward emancipation that Northerners in America were championing at the price of war between the States further challenged the theory that the black races were a separately created inferior race. In 1862 Galton stepped into the controversy, spreading Darwin's evolutionary doctrine to prove that the blacks and the whites were related in the human family. His attack shook the Bible students who stood on the premise that sepa-

rate " races," with different abilities and destinies, had always existed as natural divisions of mankind. Other champions were not wanting for Darwin's theories and once the backbone of the opposition was broken, i. e. that God had made man in his own image, evidence came flooding from comparative anatomy and psychology upholding the teaching that man evolved after millions of years following the laws of natural selection and survival of the fittest. Not only did his brain, his spinal cord, his mode of locomotion evolve from the lowest amoeba through the swimming fish, to the crawling reptile, then to the walking of animal, but his mental equipment and his mental attitudes also developed in that same slow way. Huxley and Spencer were the foremost of those who interpreted Darwin's theories as they operated in human institutions and psychologic processes.

Before we proceed with this development to see how it links up with psychiatry's beginnings, let us for a moment see what social forces were in the background of Darwin's experience which may have had some affect on his discoveries. A scholar and a sportsman, Darwin was an English gentleman. This aristocratic background gave him the impetus to travel, as many other young Englishmen did under the pretense of seeking their health, to far off lands in Asia or Africa. This social custom provided an atmosphere for careful leisurely investigation according to individual inspiration and interest with none of the pressure of the modern field party sent out to prosecute a project planned in the university library. Darwin spent five years collecting naturalistic data with no apparent expectation of utilizing it in a practical way. It was this same leisurely spirit of study for its own sake we remember, which in the life of Sir Francis Galton, yielded important practical scientific results in psychology and statistics. This practice of young Englishmen to explore the Empire was a direct result of the position of the powerful new upper class that grew out of the Industrial Revolution. Darwin, Galton, and others like them, were the sons of the economically dominant class which rose to power in industrialized England. The former nobility were comparatively less valuable and the new and keener industrialists were fully cognizant of their own worth and position. The perception of this is exemplified in Lewis Carroll's, " Alice in Wonderland," in his burlesque of the court's innocuous-

ness with its imperious Queen, its tea parties, Mad Hatter, and Tweedle dum and Tweedle dee. We may, in reflection on this historic English social realignment, conjecture that there was much to arouse curiosity—in the mind of Darwin and his contemporaries—regarding the nature of human capacities. Speculations naturally arose regarding distinctions between various levels in English society, between Englishmen and less successful empire builders and above all between Englishmen and their colonials. Social and economic changes which thus caused sharp lines of demarcation between classes undoubtedly engendered self-consciousness in this new powerful group and provided the psychologic current for such fruitful thinking. We may look a little further into the psychology of these eminent scientists and conjecture whether this sense of change and position did not cause a certain amount of anxiety which had to be allayed by research. Feelings of self-esteem and worth, represented perhaps in the theory of natural selection in Darwin's evolutionary scheme may be looked upon as anxiety-allaying in nature. Something of this may also be seen in the interest which stimulated Galton to found a science of Eugenics—an interest springing from a wish to understand the human differences that distinguished the lower from the upper classes in England, accompanied by a practical wish to do something about it.

Whatever the socio-psychologic motivation may have been, at all events the work of Darwin brought into being a new biology and indirectly a new psychology. The connecting link in this development is expressed in Haeckel's biogenetic law. Popularly stated, it says that ontogeny repeats phylogeny, i. e. the life of an individual repeats in its maturation the life of the race. Study of comparative and human embryology convinced anatomists of the validity of this principle: that the early stages of an individual's development repeated telescopically the stages which evolved over millions of years. This notion, in the hands of Stanley Hall and other psychologists, gave a new direction to the study of mental life. Perhaps, Hall argued, the biogenetic law operated for the psyche of man as well. Perhaps the mental life of a living individual repeated the stages of development of human mentality. To prove this hypothesis, both child mentality and that of the primitive man were scrutinized to

find evolutionary evidences. Numerous studies tended to show that Hall's hypothesis was correct and at the turn of the century, it was accepted that the child mind like the primitive mind, was an early stage of adult mental development. As Hallowell says, " In educational circles at the end of the last century attempts were being made to correlate the succession of subjects taught in the curriculum with the ' culture epoch ' theory of ontogenetic development."

In the meantime psychoanalysis, digging among the archaic structures of the mind of the insane and the neurotic, saw analogies between their mental mechanisms and symptom formation, and those of primitive man. Jung and Bleuler's studies of archaic forms in the thinking and art production of deteriorated dementia praecox patients seem to support the recapitulation theory. Freud stressed the manner in which feeling and thinking in childhood lingered on as active factors in the adult life of neurotic patients. In the dream especially, Freud noted, the dreamer experiences wishes and feelings of a primitive character in terms of early history of his own life (infancy) and in terms of the infancy of the human race. Thus the recapitulation law found agreement in psychoanalytic theory and in genetic psychology—two foundation stones of modern psychiatry. Darwin's work contributed materially to this development. As Hallowell puts it, " This view of mind, however, is just what one might expect to be precipitated from the mechanistic-evolutionary intellectual climate of the late 19th century reinforced by a preoccupation with such purely biological concepts as instinct, race, maturation, etc."

Two larger influences then have been sketched as being responsible for the growth of psychiatry: first, the humanitarian movement starting in the 18th century, and second, the vanquishing of religion by science and the emergence of the evolutionary theories of Darwin. With the exception of certain organic mental diseases, congenital or acquired, the notion of fixed diseases has faded. Here and there we see a remnant of it left in psychiatry, as for example, the psychopathic personality diagnosis by which is meant a fixed personality change. Psychiatry's aim now is developmental and dynamic. Psychiatrists examine the effect of pressure in terms of inhibitions, and frustrations of the ego in all its functions, and try to estimate the extent of the damage to the ego function and its possibility of repair.

There are a few other aspects of social forces which have had an influence on the growth of psychiatry. These are difficult to estimate, but powerful none-the-less. They are difficult because they are closer to our own experiences. One of these was the closing of natural frontiers and the attendant limitation in colonization and trade expansion in the last half century, with the shunting of creative energy of first rate minds into science. In addition to that, the failure of religion to handle with age-old doctrinary formulae, the emotional problems rapidly coming to the surface in the form of anxiety and unconscious fears led to the search for a medical method to handle emotional tensions. We must remember also that the increased pace of living in the last part of the 19th century focused attention on nervous ailments as the lengthened life span and increased wealth allowed people the luxury, then forced the necessity, of being treated for nervous disorders. In the last fifty years there has been a reduction in working hours, more leisure time, in the face of greater competition. This results in a greater mobilization of anxiety, while personal fortunes and gratifications are restricted and made difficult by the very nature of the present technological revolution. The alarming discrepancy between that restriction and the ease of mechanical production could easily evoke great quantities of anxiety. So psychiatry, both responding to social pressures and directing them, is faced with new and greater problems in its participation in the task of human engineering.

What tremendous forces of our impending military and political world realignment will do to the individual ego and how psychiatry will be influenced by it is a problem that we are too close to, to estimate accurately and in which we are too deeply immersed to prognosticate.

AMERICAN SPAS IN HISTORICAL PERSPECTIVE[1]

HENRY E. SIGERIST

To the European physician who comes to America it is very striking to find what little use this country is making of its mineral springs. The situation is so totally different from that which prevails in Europe that it calls for an analysis.

Mineral springs attracted the attention of people very early on account of the temperature, color, taste or smell of their water. Instinctively, people suffering from various ailments made use of them by bathing in them or drinking. Once they found relief from their sufferings, a tradition was soon established. Wherever Roman legions set foot, they made extensive use of the medicinal springs they found and Roman objects have been excavated in many European spas.[2] In the troubled centuries of the early Middle Ages the existence of many springs was forgotten, but they were rediscovered in the later Middle Ages and in the Renaissance.[3] This revival was not only due to the desire of making natural curative forces available and to an improved road system that made travelling easier; it was also a result of the development of the city. As long as people lived under rural conditions, they did not feel the need for a vacation spent in a different environment. The city dwellers, however, who lived the whole year round confined within the city walls developed a desire to leave the town for a few weeks every year and to spend the time in totally different surroundings. Many mineral springs are located in pleasant landscapes, often in mountainous regions where the climate is invigorating. What was more logical for a family who could afford it than to spend a few weeks at a spa? There the members who were

[1] Read before the Johns Hopkins Medical History Club on November 3, 1941.

[2] The European literature on the history of balneology is very rich. For general surveys see Alfred Martin, *Deutsches Badewesen in vergangenen Tagen*, Jena, 1906;—Von Oefele, Geschichte der Balneologie und der Grenzgebiete in der Neuzeit, in *Handbuch der Geschichte der Medizin*, hrsg. von Max Neuburger und Julius Pagel, Jena, 1903, Vol. 2, pp. 589-603;—Bernhard Maximilian Lersch, *Geschichte der Balneologie, Hydroposie und Pegologie*, etc., Würzburg, 1863.

[3] A. C. Klebs, Balneology in the Middle Ages, *Transactions of the American Climatological and Clinical Association*, 1916, Vol. 32, pp. 15-37.

not sick found good company, recreation and amusement, and those who were suffering from some chronic ailment could obtain a treatment which greatly alleviated their condition. Thus many European spas became general health resorts and fashionable meeting grounds for vacationists, sought by sick and healthy alike. Others that were difficult of access, such as Pfeffers in Switzerland where the spring is at the bottom of a steep gorge, had no amusements to offer, but their waters were famous and were used by an endless number of patients who could not be deterred by the hardships of the journey.

Medicinal springs and their curative powers are mentioned by ancient and mediaeval medical writers. The virtues of the waters of Pozzuoli and other spas were described in the Middle Ages in special monographs or pamphlets. The revival of scientific interest during the Renaissance drew the attention of physicians to the springs more than ever before.[4] Paracelsus did pioneering work in this field also. Equally experienced in medicine and chemistry, he visited many European spas and analyzed their waters. He frequently mentions medicinal springs and their use in his writings, and he wrote a little monograph on Pfeffers,[5] a place which was sought in those days by many famous syphilitic patients. From the Renaissance on the literature on balneology increased considerably.

The European spas have been used for over 2,000 years. Medical theories changed. Galenic doctrines dominated medicine for almost fifteen centuries. Paracelsus attacked them and developed a new theory of medicine based on chemical concepts. Iatrochemists and iatrophysicists, mechanists and spiritualists had their periods of vogue until a medical science based on anatomy and the other natural sciences developed. But whatever the theories were, patients for over 2,000 years went to the spas, bathed in their waters, drank them and found relief. Every medical theory was used to explain the effect of medicinal waters. The explanations changed, but there were always results. In every century patients were benefited by their cures.

Today research institutes have been established in various Euro-

[4] See the collection *De Balneis*, Venice, 1553, that contains the most important ancient and mediaeval texts on the subject.

[5] *Von dem Bad Pfeffers in Oberschwytz gelegen*, 1535.

pean spas and the effect of the waters is studied in clinics and laboratories. Medical students are instructed in the use of the waters. When I was a student at the University of Zurich we were given theoretical instruction in the course on experimental pharmacology. The indications for treatment in watering-places were discussed in all clinics, and once every year all clinical students went for a visit to one of the famous spas of the country. There we were given lectures and clinical demonstrations by the local health authorities and physicians, and we had an opportunity to study the facilities of the place. Thus in the course of six years we came to see the various types of spas and learned what they could achieve.

Many European spas are owned and administered by the communities or by the state, but even in such a case they are usually operated on a commercial basis. They are eager to attract visitors and their advertising is not always strictly scientific. Commercial and medical interests frequently clash. A new development took place in the Soviet Union where all health resorts with all their facilities are owned by public institutions and operated as a public service.[6] They are administered by the health authorities so that there cannot be any commercial interference of any kind. Russia has developed the science of health resorts more than any other country. A central research institute in Moscow with laboratories and a clinical division directs activities and serves as a clearing-house. Local research institutes have been established in a number of cities and in all the important health resorts. Today already more than a million patients are treated every year in spas, usually at the expense of the social insurance funds or the trade unions. The development of health resorts has been one of the most brilliant achievements of Soviet medicine, and there is no doubt that the program will be continued in increased measure after the war.

When we turn to the United States the picture is very different. The country is very rich in medicinal springs, particularly in the region of the Rocky Mountains and the Appalachians. I do not think there is one mineral water in Europe that could not be matched in America. The country has 2,717 areas in which medicinal springs are

[6] See H. E. Sigerist, *Socialized Medicine in the Soviet Union*, New York, 1937, pp. 181-189.

found, with 8,826 springs.[7] Wyoming is leading with 2,244 springs, next follows Texas, then Missouri, California, Colorado, New York; North Dakota is at the bottom of the list with no known mineral springs at all. Of all areas explored in the country 424 are used commercially and 321 have been developed at some time or other as health resorts. This seems an impressive figure. Yet when we examine it more closely, we soon find that many resorts have been discontinued, that many are undeveloped, with poor accommodations, poor medical facilities and no facilities for research at all. The number of spas that can compare today with the best European ones hardly exceeds a dozen.

According to tradition the Indians were the first to use the mineral springs of the country for medical purposes, and they are said to have drawn the attention of the white man to the waters and their curative powers. Several of the Virginia springs were already used in colonial days.[8] Virginia Hot Springs in the Alleghanies was visited by white men as early as 1720, and the first tavern was built there in 1766. The highly radio-active water that has a temperature of 110 degrees became very popular and has remained so to our day. The spring which today is in Berkeley Springs, W. Va., was the property of Lord Fairfax who gave it to the Colony of Virginia before the Revolution. In 1775 the Assembly of Virginia decided to build a town around the spring and began selling lots. The place was called Bath, and it was to become an American Bath comparable to England's most famous watering-place. George Washington used the waters. The spring has remained state property. White Sulphur Springs, W. Va., was used from 1778 on and the first cottages were built in 1804. Sweet Springs, W. Va., was discovered in 1764. Beginnings were primitive there as in other places. Log cabins were erected around the spring in 1773, but there was no bath-house and people bathed in an open pool. A two-story hotel was built in 1792 and the place soon became a health and pleasure resort.

[7] W. P. Beazell, *The Spas of the Eastern United States*, Report of the Saratoga Springs Commission to the Legislature, Legislative Document (1930), No. 70, Albany, 1930.

[8] Perceval Reniers, *The Springs of Virginia, Life, Love, and Death at the Waters, 1775-1900*, Chapel Hill, N. C., 1941.

Many other medicinal springs were found in the mountains of Virginia, and in the 1830's it became the custom to take the Springs Tour using the waters in succession. Such a tour was a social affair since every spa provided a variety of entertainment. The Philadelphia physician, John Bell, one of the pioneers of American balneology, in his book *On Baths and Mineral Waters* published in Philadelphia in 1831 is full of praise for the Virginia Springs and says:

> All that has been performed by the Bristol, Buxton and Bath waters of England, may be safely claimed as of easy fulfilment by the use of the Virginia waters just enumerated. If to these springs—the *Sweet*, the *Warm* and the *Hot*, be added the *White Sulphur*, the *Salt Sulphur* and the *Red Sulphur*, we can safely challenge any district of country of the same extent in the world, as that in which these springs are situated, to produce the same number and variety, whether we have regard to mineral impregnation or temperature; or the use of which shall be attended with more speedy, entire, and permanent relief from a host of the most distressing maladies.

John Bell, however, is well aware not only of the curative forces of the Virginia springs but also of the beauty of the landscape.

> In addition to the inducements presented to invalids and the inhabitants of our northern and eastern cities by the springs themselves, there are all the pleasures to be derived from scenery of the most varied and picturesque character—natural objects without number, calculated, some to inspire with sentiments of the sublime at their size, grandeur and wild appearance, others to fill the breast with tranquil emotions at the sight of the softened beauties of the landscape spread out before them.

Other famous spas were developed in the early 19th century, first of all, Saratoga in the state of New York. The water of Saratoga had long been known to the Mohawk Indians who used it in the treatment of various diseases. They brought white people to the spring. George Washington came in 1783, was interested and even thought of purchasing the High Rock Spring.[9] The history of Saratoga as a health resort began when Gideon Putnam built the first tavern in 1803 and laid out the village two years later. From 1806 on, the sulphur waters of Clifton Springs, N. Y. were used, and Dr. Henry Foster built a sanatorium there in 1850. In Pennsylvania the Bedford Springs were discovered in 1804 and the place became

[9] Hugh Bradley, *Such Was Saratoga*, New York, 1940.

a very fashionable resort. The Arkansas Hot Springs were made a national reservation in 1832 and thus remained the property of the federal government which established a number of bath-houses from 1878 on. In the Middle West, French Lick, Indiana, was developed as a spa from 1840.

In the middle of the 19th century the American spas had a period of great vogue. They were famous, not so much for their waters, as for their horse-races, gambling places, theaters, and other entertainments. They were resorts for the idle and rich, with luxurious hotels, parks and casinos. The waters were used, to be sure, because it was fashionable to use them, but in most cases they were a mere accessory and a pretext for social life.

The decline came toward the end of the century. Many spas were discontinued; others still show the remains of former splendor, gigantic hotels that are closed most of the time, casinos that have been turned into dusty museums. The glories of the old days when Southern landlords, New York millionaires, adventurers and expensive prostitutes mixed in glamorous intercourse are revived from time to time in novels such as Edna Ferber's *Saratoga Trunk*.

There are various reasons for the decline of the American spas. At the turn of the century they had to compete with other resorts, particularly those at the seashore such as Newport and Atlantic City. The spas had an asset which other places had not, namely their medicinal springs. But the fame and popularity of the spas in America, unlike Europe, was not based on the curative powers of the waters but on the accessories, the entertainments and amusements that other resorts could supply just as well.

At the same time in the 1890's American medicine was becoming scientific. The Johns Hopkins Hospital and School of Medicine had been opened and physicians were trained in laboratories and in hospital wards. Most of the spas were privately owned and operated for profit. The waters were frequently advertised as cure-alls in a manner that did not inspire confidence among scientifically trained physicians. The logical step would have been to establish research institutes in order to ascertain scientifically what balneological treatment could effect. The country, however, was busy with the reorganization of its medical schools and hospitals. Other scientific problems seemed much

more urgent, and the physicians with few exceptions simply discarded the spas.

If you ask an average American doctor what he thinks of treatment in a health resort, he will smile ironically and will tell you that such a treatment can do no harm but is hardly more than some kind of psychotherapy. While balneology is paid increasing attention in European medicine, American medicine as a whole persists in neglecting it. There are various reasons for this peculiar American attitude.

One, I believe, is that American patients as a rule are anything but patient. They want to be " fixed up " quickly. They want an operation if possible or, if this cannot be done, they want at least injections. Treatment in a health resort is an affair of several weeks, and such a lengthy treatment does not appeal to the average American patient quite apart from the costs involved. The trouble is that chronic diseases cannot be cured quickly.

But then there is another more complicated, a social and economic reason. In Europe from the Middle Ages on, every spa had its " free bath," a section where indigent patients were treated free of charge. Considerable donations were often made to increase facilities for the poor. And when, in the 19th and 20th century health insurance was introduced in one country after another, treatment in health resorts became available to large groups of wage earners. The Sickness Insurance Funds sent many patients to spas where they were treated at the expense of the Funds. In Europe, therefore, such treatments were not a privilege of the rich.

The situation is totally different in America. We have no health insurance. We have no organization that would enable us to send large numbers of people of low income to health resorts. I know that some spas have plans for patients of moderate means and that they give charity treatments. " The U. S. Public Health Service maintains a Medical Center in Hot Springs National Park, Arkansas, for the treatment of medically indigent patients who are infected with venereal diseases. Patients are admitted only through the National Park Service Free Bath House where personal evaluation is made of each individual's financial status, and an oath of medical indigency is

administered." [10] In the fiscal year 1940 4,662 persons applied for treatment and 2,280 were admitted for the treatment of venereal diseases.[11] Saratoga Springs gave 23,245 charity treatments in 1939-1940. Since a "cure" requires about 18 treatments, the number of people reached was not very large. Some other spas may have similar provisions but in a population of 130 millions this is not more than a drop in the bucket. Besides, it is not only a question of free treatments. Patients must travel to the spas, must lodge themselves and first of all must be able to afford the loss of several weeks' wages.

As conditions are in America, treatment in a spa is primarily for people of some means. Rich people, however, preferred to seek the highly developed European resorts where an ocean separated them from their office, where they were sure to find the best possible medical facilities, highly competent physicians and the many amenities that such places usually offer. It has been estimated that in 1930 100,000 Americans took treatments in European spas, spending 100 million dollars there.[12]

As a result of these conditions most American spas remained undeveloped or became social resorts, more famous for their golf courses than for their waters, and the consequence was that our medical students were not instructed in the matter and that the majority of our physicians therefore believe that treatment in health resorts is a swindle or at best a dignified medical superstition, if not a European racket.

It is very unscientific to deny the experience of 2,000 years merely because we have no ready-made theory that explains all phenomena in every detail. It would have been foolish to deny the existence of lightning because electricity was not yet known. Experience has preceded science in medicine more than once. Our most valuable drugs, quinine, digitalis, opium, mercury and many others were given for centuries, long before pharmacology was able to explain their action. Oskar Baudisch has very pertinently shown how similar the situation was with regard to heliotherapy.[13] Sunlight was used as a

[10] From a circular of the United States Public Health Service.

[11] Annual Report of the Surgeon General of the Public Health Service of the United States for the fiscal year 1940, p. 144.

[12] W. P. Beazell, *l. c.*

[13] Oskar Baudisch, Magic and Science of Natural Healing Waters, *Journal of Chemical Education*, 1939, Vol. 16, p. 442.

healing agent for centuries. Rickets were treated with ultra-violet rays. To " scientific physicians " this was a mere superstition—until the vitamins were discovered and it was found that sunlight changes the ergosterol of the skin into vitamin D. Chemistry until recently was gross chemistry; microchemistry is in its infancy still, and we are beginning to realize that a few molecules of a chemical compound can cause definite biological reactions. The theory of dissociation and the discovery of radioactivity greatly stimulated the study of medicinal springs, and Baudisch has pointed out how important and illuminating Alfred Werner's concept of coordination valency (covalency) is in this particular field.[14]

The scientific attitude toward spa treatment, in my opinion, is to use natural curative forces on the basis of the rich clinical experience already available today, and at the same time to promote laboratory and clinical research most energetically.

There are encouraging symptoms that show that American medicine is beginning to overcome its destructive skepticism and is developing a scientific attitude in this field also. The turning point came when the State of New York established a research institute at Saratoga Springs, the first research institute of its kind on the American continent. The history is interesting. At the turn of the century the decline of Saratoga as a health resort was so great that a commercial company was exploiting the waters, pumping out 150 million gallons a year! The natural carbonic acid gas was extracted and used for the charging of various manufactured beverages. The springs ceased to flow and the country was threatened with being deprived of some of its most valuable medicinal waters.

At this critical moment the State of New York stepped in. In 1909 the legislature passed a bill enabling the state to take control of the springs. The area with its 163 springs became a State Reservation. It took seven years for the springs to return to their old level. The state then decided to develop the spa. In 1929 it appointed a commission with Bernard M. Baruch as chairman " to make a comprehensive study and survey of the mineral springs at Saratoga." [15] The

[14] Baudisch, *l. c.*, pp. 445-446.

[15] Report of the Saratoga Springs Commission to the Legislature, Legislative Document (1930), No. 70, Albany, 1930.

Commission consulted with geologists and foreign balneologists; in cooperation with the New York Academy of Medicine it appointed a Committee of Physicians who "made intensive investigations both at Saratoga and at the chief resorts of Europe." The following year the Commission already was able to present definite recommendations to the legislature. The State of New York spent 8.5 million dollars and in 1935 the new Saratoga Spa was opened. When it was completed the next year, it included a group of beautiful buildings, a Hall of Springs, two new Bath-Houses, a Recreation Unit, a Hotel and a Bottling Plant.

This was splendid in that it gave the country a unique health resort with facilities that compare very favorably with those of the best European spas. Still more significant, however, was the fact that the new development included a Research Institute. It was named after Dr. Simon Baruch, Bernard M. Baruch's father, a physician of vision who long before had had such a development in mind. Research is the spring that feeds all medical activities. When practice is dissociated from research, it soon degenerates into mere routine. Intensive research is particularly needed in such a field as balneology that has a long empirical but a very short scientific history.

This was clearly realized by the Committee of Physicians that in its Report to the Legislature of 1930 recommended:

> (c) That steps be taken toward the establishment of a scientific institute at Saratoga whose functions should be threefold.
>
> The first function would be to provide modern laboratory facilities for diagnostic work, this to include facilities for radiology, cardiology, basal metabolism, serology, bacteriology, and other diagnostic aids.
>
> The second department, closely linked to the laboratory, would be devoted exclusively to research work in balneotherapy, and other methods of treatment of chronic disease. This department would offer the physicians of the state educational opportunities for the study of the nature and treatment of chronic diseases.
>
> The third department would be given over to the study of the geology of the district and the physical and chemical properties of the waters; this department to be under the direction of a competent modern chemist, while the laboratory and research divisions to be under the direction of a skilled medical director with a good clinical background, and of a research type of mind. The research and experimental work, as well as the educational facilities, might be associated with one or more medical schools of the State.

A direct affiliation with the Albany Medical School readily suggests itself because of its proximity to Saratoga Springs.

The relationship of the institute to the medical practitioners should be worked out in conference with representatives of the State Medical Society and of the local physicians.

(d) In connection with this institute, a fully equipped department of physiotherapy should be developed. It should comprise facilities for the various kinds of physio-, thermo-, hydro- and electro-therapy, as well as inhalatoria, gas baths, sun baths, open air as well as enclosed gymnasia, and other features of special therapy.

(e) The institute should be built on State property in close proximity to the bathing establishments. In its directly utilitarian aspects, i. e., in its laboratory work and its physio-therapeutic equipment, it should be built and maintained by the State, although in all probability the charges made for service rendered will cover the cost of its maintenance. For the research work, which would be one of its outstanding features, continuous maintenance should be assured. This institute should be managed by a board of trustees, or a board of scientific control, appointed in a manner which will properly safeguard its purpose.

(f) The selection of the Medical Director and his staff should be the responsibility of the board of trustees or the board of scientific control.

(g) It would, perhaps, be desirable to consider a plan whereby fellowships would be granted to young physicians for travel and study abroad, and to organize, at Saratoga or elsewhere, courses in balneotherapy when the opportune time comes.

(h) The clinical material for research purposes could come from both the ordinary patients and the patients who would be accommodated free of charge, or at greatly reduced cost. A rule should be adopted that no one could pursue a course of treatment at Saratoga without medical direction by physicians recognized by the management of the spa.

The foundation of the Simon Baruch Research Institute marked a date in the history of American medicine. It signified that America was catching up with European medicine in this field also, that balneology was becoming—very belatedly—a scientific discipline in this country as it already was in Europe. The Institute was well conceived and well planned. The founders were aware that this was a new departure in American medicine and that the Institute would have far more than local, that it would have national significance. If anything, the research work of such an institute would be able to overcome the ignorance of the average physician about balneotherapy that was depriving thousands of chronic patients of the benefits of

such treatments. Unfortunately the funds anticipated for the maintenance of the Institute were not forthcoming. It is operating today, but on a very limited budget. Only part of the building serves its original purpose, and it is sad to find a dancing academy and a theater in rooms that were to be those of a temple of science. A beginning is made, nevertheless, and with Dr. Walter S. McClellan as Medical Director and Dr. Oskar Baudisch as Research Director, the Saratoga Springs Authority has embarked on its research program. Since private funds seem unobtainable, it is to be hoped that the State of New York which has shown so much foresight and wisdom in developing the spa will be aware of the historical significance of its Research Institute and will support it adequately for the benefit of the entire nation.

I would like to make a strong plea for the development of our American health resorts. We need them, not because European resorts are unavailable at the moment. There is no reason why our patients should have to go to Europe for such treatments. We need them because the chronic diseases, the diseases of mature and old age are in the foreground, our major health problems today. We shall need them badly after the war, not only for the veterans of the armed forces, but also for the veterans of labor.

We need our resorts not only for the treatment but also for the prevention of serious diseases. We could use them as centers of rest and recreation under medical supervision. After a year of hard work in factories and in the fields, hundreds of thousands of men and women need more than a vacation. They need some repair. The fruit-picker after a season of back-breaking work, the miner who for months inhales dust, the steel worker handling the white-hot metal, the textile worker spending the whole year standing at the loom, the elevator boy who lives in a cave, the shop girls and waitresses who try so very hard to conceal their weariness and anemia with rouge and paint—how would it be if they could spend a few weeks in a health resort, have a physical check-up, combine vacation with treatment, and have their minor ailments, the result of hard work, treated before they develop into serious diseases—their beginning rheumatisms, arthritis, bronchitis, digestive troubles, varicose veins, gynecological ailments? Would this not be sound preventive medicine and sound economics as well?

This is not Utopian. There are countries where this is practised on a large scale. We can do it also. All that we need is organization and intelligent planning.

In 1938 the House of Delegates of the American Medical Association, recognizing the value of treatments in health resorts, authorized the appointment of a Committee on American Health Resorts. The Committee was duly appointed by the Board of Trustees and consists of highly competent men with great experience in the field. Now after four years, the Committee is preparing a list of approved health resorts.[16] It has established minimum requirements that a health resort must meet before it can be included in the list. This is a sound step that will separate the tares from the wheat. It will protect the public and will raise standards.

As a second move the Committee is preparing a series of scientific papers on various phases of health resort therapy. They will be published in the Journal of the American Medical Association and, as I hear, may later be issued as a volume.

All this is a sound but a very modest beginning. The Committee without any doubt will soon have to face other tasks among which will be the following:

1. *Insistence upon the necessity of research.* One institute obviously is not enough in so large a country with such a variety of natural curative forces. Additional research institutes must be founded in strategic points where the curative factors are different from those of Saratoga Springs. Institutes must have laboratory and clinical facilities. Unless patients are hospitalized and thus under constant medical supervision, it is difficult to obtain accurate clinical data. Health authorities, state and federal, must be interested in such projects and it should be demonstrated to politicians that investments in health resorts are self-liquidating and will ultimately represent a considerable saving. This is bound to occur, since treatment in health resorts can prevent the development of serious disabling illnesses and reduce the disability caused by chronic diseases.

2. *Provision of teaching facilities.* Since ignorance of the average physician is the chief barrier, instruction must be provided and must

[16] *Journal of the American Medical Association*, 1942, Vol. 118, p. 379.

begin with the medical students. No medical school has a chair for balneotherapy yet, and most clinical teachers have little experience in spa treatments. A first step toward solving the problem would be the establishment of research fellowships in the major spas of the country as the Committee of Physicians of Saratoga Springs already recommended in 1930. Young clinicians would thus have an opportunity to become acquainted with the various health resorts and their therapeutic possibilities. After having returned to their schools they could instruct students. Physicians could be instructed in postgraduate courses of several weeks' duration.

3. *Creation of a literature.* Our literature on the science of health resorts is very poor compared with that of European countries. The Saratoga Springs Authority has taken the right step in publishing a series of very good pamphlets. The scientific papers prepared by the Committee on American Health Resorts will be a most welcome contribution. We have William Edward Fitch's book *Mineral Waters of the United States and American Spas*, published in 1927, which is the worthy successor to the works of John Bell (1831 and 1855),[17] John J. Moorman (1867),[18] George E. Walton (1873),[19] A. N. Bell (1885) [20] and James K. Crook (1899).[21] We have no book, however, that could in any way compare with the *Handbuch der Balneologie, medizinischen Klimatologie und Balneographie* [22] which has not been translated into English. A journal will have to be founded sooner or later. It will create a link between the various resorts and serve as a clearing-house for scientific information. Its financing should not be difficult. The health resorts admitted to the approved list could be called upon to make initial contributions until the journal is firmly established.

4. *Organization of an American Society for the Science of Health Resorts*, or whatever it may be called. There is an American Clinical

[17] *On Baths and Mineral Waters*, etc., Philadelphia, 1831.—*The Mineral and Thermal Springs of the United States and Canada*, Philadelphia, 1855.

[18] *The Mineral Waters of the United States and Canada*, Baltimore, 1867.

[19] *The Mineral Springs of the United States and Canada*, New York, 1873.

[20] *Climatology and Mineral Waters of the United States*, New York, 1885.

[21] *The Mineral Waters of the United States and Their Therapeutic Uses*, New York and Philadelphia, 1899.

[22] Edited by E. Dietrich and S. Kaminer, Leipzig, 1916-1926, 5 vol.

and Climatological Association that has a very distinguished record. Its chief interest, however, lies in general clinical medicine. Once the science of health resorts develops, the need for a forum will undoubtedly be felt.

5. *Organization of an American Association of Health Resorts.* The resorts have many problems and interests, scientific and economic, in common. A permanent secretariat would serve as a clearing-house and could become a valuable source of information for physicians and public alike. It would be a distributing agency for literature on the various spas and could supply information concerning medical facilities available and costs of treatments.

6. And finally, steps should be taken now to *plan for a broadly conceived social program* that would make our health resorts available to the mass of the people and would develop them into strong centers of human conservation. In the reorganization of medical services that is bound to come after the war, our health resorts can play a very important part. Thought should be given to the subject in time and plans should be discussed with health and welfare authorities, trade unions, farm groups and consumers' organizations.

I am well aware that this is an ambitious program that cannot be realized over night, but if ever, it is timely now when the foreign competition has dropped out and the country must rely on its own resources. America is blessed with all curative forces nature can provide. It is up to us to use them intelligently for the benefit of the people.

PHILADELPHIA CONTROVERSY

1775–1780

JOHN E. KIEFFER, M. S.

A country in the midst of revolution is a fertile field for the development of traits of character in brilliant men which might, in normal times, rest subdued, eventually turning to ashes under the weight of their own smouldering. Our own American Revolution produced many such events, as is clearly illustrated by the treason of Benedict Arnold, the double dealings of prominent citizens and other similar episodes. Chief among these was the controversy between Dr. John Morgan and his student Benjamin Rush on one side, and Dr. William Shippen, Jr., on the other. Although the actual battle-ground of the controversy occupied the entire Atlantic seaboard, the Continental Congress and the American Army, its purpose was concerned with an attempt on the part of a group of individuals to obtain medical supremacy for themselves in Philadelphia. The coveted post of Director-General of the Army Medical Service was purely incidental to the main objective—dictatorship of the most powerful colonial medical center.

In addition to this desire for control, a second factor entered into the controversy. Shippen represented that group which, even in 1775, was characterized as "Old line Philadelphia society," while Morgan, although his family had been in the Colony for many years and was comfortably established financially, represented the group regarded by the first families as being upstarts. His elevation to the foremost position in Philadelphia medicine was as a red cape to a bull in the eyes of the old line families. Hence the controversy between Morgan and Shippen, despite its widespread ramifications, despite the thousands of lives it involved and despite the fact that it seriously interfered with the efficiency of the Continental Army, was purely a local affair and for that reason has been called by the writer, The Philadelphia Controversy.

At the outbreak of the American Revolution, Dr. John Morgan was the outstanding choice for Director-General of the Military Hospital and Physician-in-Chief to the Armies. Educated in medi-

cine under the guidance of the best minds among Colonial physicians, he had been sent abroad under the patronage of Benjamin Franklin, himself regarded with no great favor by the old Philadelphia families. His record at Edinburgh was the most outstanding of any American student of his day. His brilliant thesis on the

Fig. 1.

JOHN MORGAN IN 1765.

secretion of pus from the blood won him his doctorate. His ability as a histologist brought him extravagant praise from Sue and election to the Academy of Surgery of Paris. His outstanding work with Morgagni of Rome brought him membership in the Society of Belles Lettres. As a fitting climax to his sensational career he was elected Fellow of the Royal Society of London and Member of the College of Physicians of Edinburgh, in addition to being made Licentiate of the College of Physicians of London. All this came

to him before he had reached his 28th birthday and in less than three years after his arrival at Edinburgh. No other American physician could even approximate his honors and accomplishments—no other with the possible exception of his life long friend and colleague, William Shippen.

William Shippen, the son of a wealthy, politically influential family, was a constant companion of Morgan until their ways parted upon their entrance into college. While Morgan attended the less spectacular College of Philadelphia, Shippen entered the College of New Jersey, later Princeton, of which his father was a trustee. He had a brilliant record as a student, graduating Valedictorian of his class. After a brief period under his father, who was also a physician, Shippen went to England where he was associated with the Hunters. He returned to Philadephia in 1761 to establish his practice.

The seeds of discontent were probably sown upon Morgan's arrival from Europe. Prior to this time William Shippen had been considered to be the leading medical light among the younger men. He was soon to relinquish his lead to his friend, Morgan. For a number of years Morgan had been obsessed with the idea that America could support a first rank medical school. This idea he had communicated promiscuously to all and sundry. When Shippen established himself in practice in Philadelphia he attempted to induce the Trustees of the College of Philadelphia to sponsor such a school. In view of Morgan's rather incautious and trusting disclosure of his ideas it may be that Shippen borrowed the idea. Be that as it may, his appeal to the Trustees fell on deaf ears and he was forced to abandon the plan. To compensate for his failures, Shippen established a private school of Anatomy and Obstetrics which was endorsed but not supported by the Pennsylvania Hospital. In the spring of 1765, Morgan returned from England, the possessor of not only the highest medical honors Europe could offer, but also of a dynamic personality coupled with the determination of a crusader fighting for an ideal. His reputation secured him an audience with the Trustees and lent weight to his words. Backed by the outstanding men in American medicine, Drs. Thomas and Phineas Bond, Thomas Cadwalader and John Redmond, he succeeded in

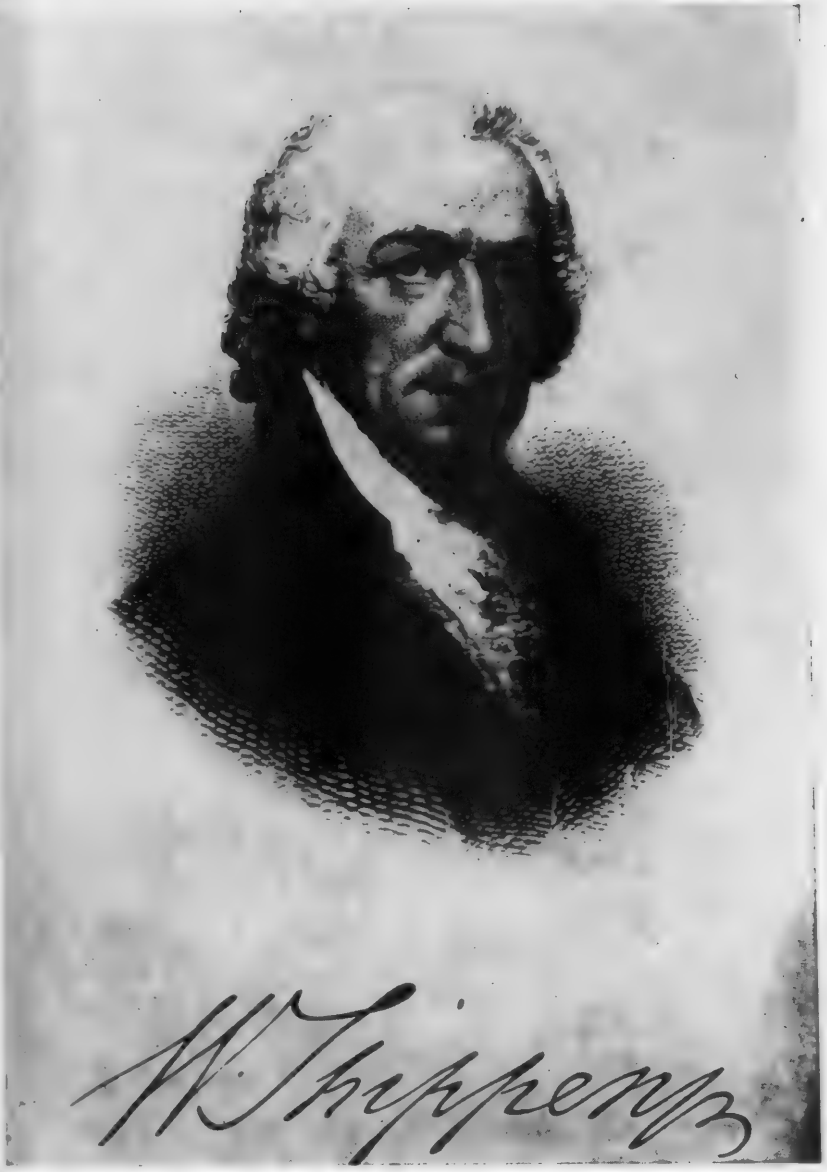

Fig. 2.

William Shippen, Jr.

his first appearance before the board. His plan was adopted immediately and at the age of 29 he found himself the head of the first medical school in America. An interesting side light on the character of Morgan is found in the fact that, so sure was he of the success of his plan, two years before he presented it to the Trustees he had already written the famous discourse, "A Discourse on the Institution of Medical Schools in America," which he intended to use as his opening address at the first public Commencement. His loyalty to his friend led him to secure the appointment of Shippen as Professor of Anatomy.

At this point Benjamin Rush must be injected into the picture. He had first been a student of Shippen's in the old School of Anatomy, but he soon lost his professional heart to Morgan. No man ever fought harder for another than did Rush for Morgan in later years. It was through Morgan's influence that Rush joined the faculty in Chemistry. His difficulties in later life may be traced directly or indirectly to the great love Rush had for Morgan.

The outbreak of the revolution found Morgan the leader of Philadelphia medicine, if not the leader of American medicine. As director of the school his influence over his colleagues and students was tremendous. He exerted considerable influence in the American Philosophical Society and his power was almost unlimited in the College of Physicians. From a professional viewpoint he was untouchable. Socially, Morgan was secure. His marriage to Mary Hopkinson, in 1765, allied him with an old and powerful family. His father-in-law controlled the Board of Trustees of the College and was extremely active in local politics. Shippen's position was slightly less prominent, in so far as the public was concerned. His marriage had allied the Shippen family with another old house. His father and uncle exercised great control, politically and financially. His medical prestige was based on an accumulation of the rewards of his own efforts in addition to those of his father. Both Morgan and Shippen were 39 years of age in 1775 and Rush had reached his 30th birthday. Had these men been ten years older, the controversy might never have occurred, but the hot headedness and ambitions of youth were sufficiently strong to cloud all other considerations.

In order to appreciate Morgan's qualifications for the post of

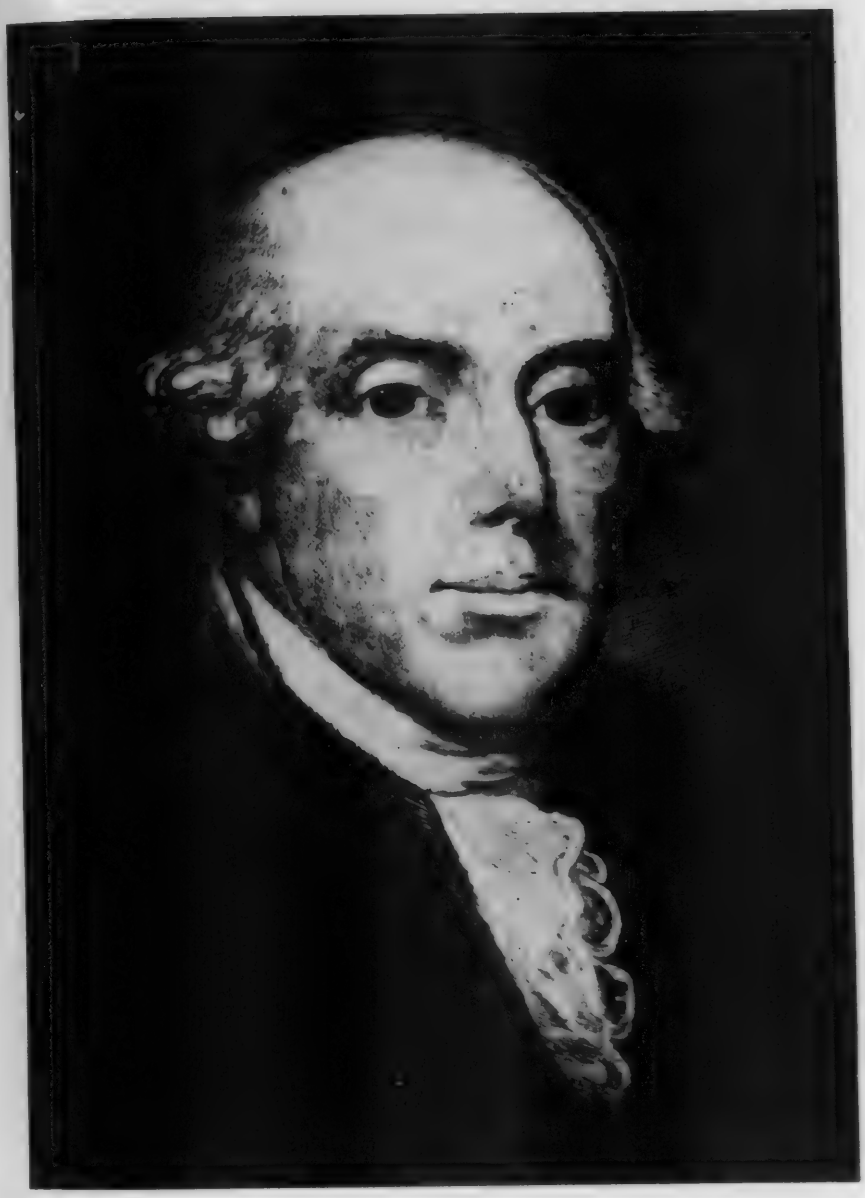

Fig. 3.

BENJAMIN RUSH.

Director-General, we must go back to his earlier life. In addition to his medical supremacy Morgan offered a very rare gift to the struggling Army. Like his Commander-in-Chief, he was a soldier. From approximately 1757 until he left for Europe, Morgan had been associated with Franklin's "Associators," a pioneer American fighting group. In 1758 he resigned as Apothecary to the Pennsylvania Hospital to accept the commission of Lieutenant of Infantry in a regiment drawn from the Associators. While essentially appointed as a line or combat soldier he soon assumed the post of regimental surgeon, along with his other duties. He saw service in the French-Indian Wars and had all the advantages of British Army training in both posts. Thus, when Washington desired a man to command his medical services, Morgan loomed so large on the horizon that there was no question as to who the Director-General should be. Congress appointed him in 1775, and his troubles began.

The general medical conditions of the Army were such that Morgan was driven almost to a frenzy. Recalling his Army experience he ruthlessly swept aside incompetence and chaos and attempted to institute discipline and efficiency. His "Vindication" gives us a complete and horrible picture of the conditions he found. Regimental surgeons, in many cases, were not physicians but held their posts by political preferment. It was almost a universal condition in the Army for Assistant Surgeons to be men found incompetent and unfit for other duties but sufficiently powerful politically to warrant commissions. A complete staff of trained physicians in any regiment was almost nonexistent. Many regiments, fighting on the lines, were without elementary medical supplies or funds to secure them. Other regimental surgeons sold the supplies as rapidly as they received them, pocketing the proceeds. Records were almost unknown and discipline did not exist. Hospitals were, in most cases, a guarantee of death to any unfortunate consigned to them.

In attempting to correct these conditions Morgan found almost insurmountable difficulties. His authority was questioned on every hand. He was harassed by petty politicians and left without support by Congress. Washington, in his desperate fight to stem the endless retreats, could not take time to render assistance. It is a remarkable tribute to Morgan that by the time of his dismissal he had a moderately efficient corps. Men at least received fair, if not compe-

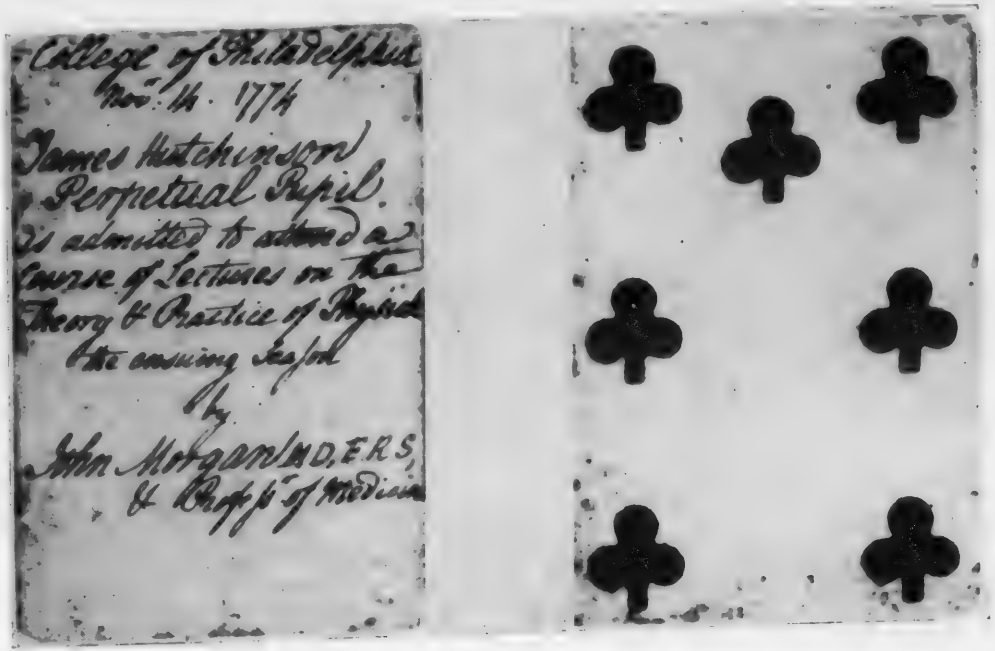
College of Philadelphia
Nov.r 14. 1774
James Hutchinson
Perpetual Pupil
is admitted to attend a
Course of Lectures on the
Theory & Practice of Physick
the ensuing Season
by
John Morgan M.D. F.R.S.
& Prof.r of Medicine

Fig. 4.

Card signed by Morgan, in 1774, admitting a student to his course of lectures.

tent, treatment. He secured the appointments of both Shippen and Rush. The former first to the flying camps and later to the hospital at Bethlehem, and the latter to the Army of the Middle. Left to his own devices it is probable that Morgan would have produced an excellent medical service for the Army, at least he would not have allowed conditions to become as bad as they became under his successor.

A combination of events led to his downfall which ultimately ruined his life. The start of this combination must be found in the Shippen family. The Shippen family, during the revolution, was a peculiar one. While William Shippen, Sr., served in Congress, Edward, through his daughter Peggy, worked closely with the British and ultimately secured the treason of Arnold. The family seems to have cared little which side won so long as the family profited. In addition to this, the political power, or the branch to which young William belonged must have presented the opportunity for eliminating Morgan from the picture in so far as Philadelphia medicine was concerned. Thus it was that, in addition to the preferment that Morgan showed Shippen, Shippen's father, as a member of Congress, was in an admirable position to advance his son. This he did, with a vengeance. By political conniving, young Shippen secured a rank equal to that of Morgan and entirely free from Morgan's authority. The petty jealousies and hurts which had been endured by the failure of Shippen to equal the prestige of Morgan in Philadelphia medicine were finally exacting toll. Morgan's eyes were opened at last and he was able to see his so-called friend in his true colors. Ever forthright, Morgan accused Shippen openly of attempting to undermine him and the controversy was in the open. Morgan's enemies rallied to Shippen and a powerful anti-Morgan bloc was established. His authority was questioned on every hand. Petty intrigues corrupted his system. The whole affair was finally brought to a head by the Springer Incident.

Dr. Samuel Springer, in charge of medical affairs of the Army of Northern New York, had, secure in his political support, defied Morgan openly. After repeated examples of insubordination and general incompetence and inefficiency, Morgan courtmartialed him and dismissed him from the service. The combined weight of Springer's political support with that of Shippen's, brought to bear on Morgan, was

more than Congress dare overlook. Morgan was not tried by a court, but was summarily dismissed for mismanagement and inefficiency. He was denied an opportunity to defend himself! Almost simultaneously, Shippen was appointed to supreme charge of medical affairs.

Morgan returned to Philadelphia, a broken man. His constant efforts to persuade Congress to give him a hearing were without result. In an effort to at least clear himself in the eyes of his friends he published his famous "Vindication of His Public Career in the Station of Director-General of Military Hospitals and Physician-in-chief of the Armies." Having made the gesture, Morgan retired from the public eye to brood over the injustice. This state of affairs might have become a permanent one if it had not been for Rush.

Rush remained in the Army until 1778, fighting desperately to clear his mentor of the charges. In 1778, in complete disgust at the condition to which Shippen had allowed medical service to degenerate, Rush resigned, determined actively to fight to clear his friend. He possessed no little political power himself and had been chairman of the committee to which the decision of American Independence had virtually been left. He literally dragged Morgan from his self-imposed exile and took the fight to the floor of Congress. His efforts finally secured a court martial of Shippen.

Shippen, in the meantime, had allowed the carefully organized medical department of Morgan completely to degenerate. The progress of the previous two years had been wiped out. All the former evils had returned. The trial was a thing of acrimony in which Rush had the leading role. He accused Shippen of many things, chief among which was the sale of medical supplies to the enemy, the appropriation of military funds, neglect of duty to further his personal interests and complete disinterest in the affairs of his department. Despite the seemingly overwhelming proof, Shippen was acquitted, chiefly through the testimony of Dr. Bodo Otto, who worshipped Shippen's position. Despite the protest of his other subordinates, Congress, through its committee headed by John Witherspoon, acquitted Shippen and sent Rush and Morgan home dispirited but not defeated.

The political powers who stood to gain most became uneasy and gave Morgan a private hearing before Witherspoon's committee, in hopes of preventing further action of his part. He, of

course, was completely exonerated by this hearing in 1779. However, his acquittal of the charges made at his dismissal served only to spur both Morgan and Rush to greater stubbornness in their efforts to secure Shippen's dismissal. New evidence was secured and another trial for Shippen was obtained. The proof must have been overwhelming in this trial for a great many irregularities occurred during its course. After the trial had started, members of the court whose sympathies were with Morgan were removed and replaced by friends of Shippen's father. Other, weaker members of the board, were openly threatened and harassed. A pointed letter was received from Washington with whom the Shippen family enjoyed a personal friendship. This, so we are told, practically called for Shippen's acquittal. There is a possibility that Arnold, who knew Shippen and was related to him by marriage with Peggy Shippen, might have exerted his influence. He was still a hero to a great many people and at this period was high in favor with Washington. While the evidence piled up alarmingly, Shippen's future still seemed secure. He was finally acquitted by a majority of one vote. This time, however, he did not remain Director-General. Despite his acquittal, his indiscretions must have been fairly well established because he resigned at what is believed to be the personal wish of Washington.

Little is left to be said. Morgan returned to solitude—the idealist who never recovered from the injury to his enthusiasm. He lived only until 1789 when he died, probably from a broken heart. Shippen returned to Philadelphia to brazen out his two trials. He acquired a few further honors but never did he obtain the position in Philadelphia medicine to which he aspired.

Strangely enough, it was not Shippen whom Philadelphia medicine set up as its leader, but Benjamin Rush. Rush took over Morgan's post as Professor of Theory and Physic in 1789 and his influence and power in Philadelphia medicine was never even threatened by the powerful Shippen family. Between young William's term as Director-General and the betrayal of West Point by Arnold, the Shippen family seemed to lose the support of its contemporaries. Today, Morgan and Rush remain great names in medicine, while Shippen's many worthwhile contributions have almost been forgotten with his name.

Fig. 5.

John Morgan, shortly before his death in 1789.

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METEOROLOGICAL, TOPOGRAPHICAL, AND CLIMATOLOGICAL STUDIES OF EARLY MICHIGAN SANITARIANS

EARL E. KLEINSCHMIDT

> It is not improbable that this same knowledge of meteorological conditions will ultimately save life * * * by being connected with other knowledge relating to disease prevalent at certain seasons of the year. * * * —Henry B. Baker, 1873.[1]

Credit for the initiation of systematic meteorological investigations in the United States belongs to the Medical Department of the Army.[2] With its successful continuance in this department, several of the states became interested and shortly established similar systems—New York in 1825, Pennsylvania in 1836, and Ohio in 1842. The Smithsonian Institute at Washington began its work in this field in 1849.[3] In Michigan, regular observations began in 1858. According to available literature, monthly meteorological reports were made by Dr. L. S. Horton of the United States Marine Hospital at Detroit, and published in the *Peninsular and Independent Medical Journal*.[4] Other physicians in the state were most enthusiastic over the work, but lacked the necessary equipment to carry it on properly. Quite a number of them kept individual meteorological registers of a much simpler nature.[5] Not until the establishment of the State Board of Health were such observations made on a state-wide basis.[6]

According to Dr. Zina Pitcher, one of the pioneer meteorological observers in Michigan, the idea of taking regular meteorological observations was originated and developed in this country in 1819 by Dr. Lovell, the first surgeon-general of the United States Army.[7] Medical personnel at the several army posts about the country were required thereafter to take regular meteorological observations, pay-

[1] *An. Rep.*, S. H. B., I, 29.
[2] *Pen. J. Med.*, Aug. 1856, IV, 108.
[3] *Pen. J. M.*, May, 1856, III, 498; *Pen J. Med.*, Jan. 1885, II, 297.
[4] *Pen. & I. M. J.*, May, 1858, I, 115.
[5] *Loc. cit.*
[6] *An. Rep.*, S. B. H., VI, vii.
[7] *Pen. J. Med.*, IV (1856), 108.

ing particular attention to "medical topography of the different stations of each surgeon, the climate and diseases prevalent in the vicinity, &c." [8]

Pioneer Meteorological Observers

According to available accounts, Dr. L. S. Horton of the United States Marine Hospital at Detroit was supplied with a full complement of meteorological instruments in May, 1858.[9] Thereafter, monthly reports of meteorological conditions in Detroit appeared in the *Peninsular and Independent Medical Journal*. These continued until April, 1860 when the *Journal* was discontinued because of lack of funds.[10] Commenting on the publication of the United States Medical Department "Army Meteorological Register for Twelve Years from 1843 to 1854," Dr. Zina Pitcher expressed great enthusiasm for the work, saying, "Such documents contribute greatly to the credit of the enlightened officers of government who plan and execute them." [11] Apparently his enthusiasm continued, for the records reveal that in a report he made to the Committee on the Epidemics of Ohio, Indiana, and Michigan of the American Medical Association, he called attention to the close relationship existing between meteorological conditions and disease.[12] In 1856, he commented as follows in an editorial appearing in the *Peninsular Journal of Medicine*:

> We hope to see them multiplied, and the different State Governments imitate the Federal in making provision for accurate and full meteorological observations. Our own State, we think should organize a system of this sort without delay, if not in connection with our University, certainly with that of our Agricultural College, and put at the head of this department in it, a scientific and practical gentleman, whose experience and knowledge and known devotion to meteorological studies amply qualify him for the position.[13]

The State Medical Society, known at that time as the Peninsular Medical and Scientific Society, became interested in meteorology in 1853. At the first meeting of the newly organized Society, Dr. M. K. Taylor of Brooklyn was appointed a committee to investigate the subject of meteorology and to report at the next annual meeting.[14]

[8] *Loc. cit.*
[9] *Pen. and Ind. Med. J.*, I (1858), 115.
[10] *Ibid.*, I and II (1858-1860).
[11] *Pen. J. Med.*, IV (1856), 109.
[12] *Pen. J. Med.*, II (1855), 401.
[13] *Ibid.*, IV (1856), 109.
[14] *Ibid.*, I (1853), 48.

To help matters along, Dr. Zina Pitcher, editor of the *Peninsular Journal of Medicine,* wrote the following editorial later in the same year:

METEOROLOGY

The subject of meteorology is one so obviously connected with Pathology and Hygiene, that the Peninsular Medical and Scientific Society, which was organized in March last, deemed it necessary to take immediate measures to have the meteorology of the State investigated, recorded and reported upon. Dr. M. K. Taylor of Brooklyn, Michigan, was therefore appointed a committee to establish over the State a system of observations for this purpose, and to collect and report the results. No one man can accomplish such an enterprise. He must unite with him many observers in different localities. All those persons, physicians or not, who are willing to assist in making and recording such observations, are earnestly requested to communicate with Dr. Taylor, Brooklyn, Michigan.[15]

At the annual meeting of the Society the year following, Dr. Taylor gave an extended report of his investigations.[16] Apparently the enthusiasm for this new adventure was held by only a few physicians. "Efforts were made to enlist a sufficient number of persons in the more important localities of the State," said Dr. Taylor, "but few, however, expressed a willingness to do so."[17] Undismayed, however, he pointed out the possibilities of this work saying, "It is hoped that so rare an opportunity for scientific research will not go unimproved by the profession of the State, and those who seem to be best qualified to prosecute them, and to whom the greatest benefits will be likely to accrue, will enter into the subject with that zeal apparently demanded by the circumstances."[18] The report of this committee was received with thanks by the Society.[19] Professor A. B. Palmer of Ann Arbor added that he hoped the Society would reappoint this committee and endeavor to devise means of connecting its observations with observations on the prevalence of diseases of

[15] *Ibid.*, p. 63.

[16] *Ibid.*, I (1854), 488; this report included observations from August 15, 1852 to March, 1854 of temperature, rain, humidity, wind, snow, and weather. (*ibid.*, p. 489).

[17] *Ibid.*, p. 483.

[18] *Ibid.*, p. 488.

[19] *Ibid.*, p. 491; at the annual meeting of the American Medical Association in St. Louis, Missouri in 1854, Dr. Palmer urged other states to follow the plan of collecting meteorological statistics devised by the physicians of Michigan.

various kinds.[20] To a question relative to the relation between humidity and disease, Dr. Taylor replied that " a very close connection could be traced between the lines of excessive humidity and the track of certain epidemic diseases over the country." [21] Dr. Taylor's interest in meterological problems continued until his removal to another state in 1856. Dr. S. L. Andrews of Romeo was appointed in his stead.[22]

Besides the State Medical Society, the North-Eastern District Medical and Scientific Association composed of physicians from Oakland, Macomb, and St. Clair counties carried on similar observations.[23] In 1856, they assessed each member of the Association fifty cents to be " raised semi-annually until sufficient is raised to procure a full set of meteorological instruments, to be the property of the Association." [24] At the annual meeting of this Association in 1858, Dr. S. L. Andrews of Romeo submitted a plan for making meteorological observations. This was accepted and the committee asked to continue its investigations.[25]

In 1856, Dr. Zina Pitcher declared on one occasion, " It is a matter deserving of much gratulation, that the pioneers in this region have attracted and received the attention of different governments, and that both their patronage and presses have contributed largely, of late years, to bring the subject of meteorology in its various important relations before the public, and to afford material for the study and deductions of competent minds in various departments of knowledge." [26] Among the most noble of these pioneer observers were A. Winchell, Professor of Physics and Civil Engineering at Ann Arbor, Dr. J. H. Beech of Coldwater, and Rev. George Duffield of Detroit. Prof. Winchell's observations were published irregularly in the *Peninsular Journal of Medicine* during 1854-55; [27] Dr. Beech began his studies during the year 1855; [28] Rev. Duffield of Detroit began his observations in 1854 and continued for many years thereafter.[29] In his various comments on meteorological subjects, Dr. Zina Pitcher often took occasion to make mention of Rev. Duffield's work.[30]

[20] *Loc. cit.*
[21] *Ibid.*, I (1854), 491; *Ibid.*, p. 487.
[22] *Ibid.*, III (1856), 500.
[23] *Pen. and Ind. Med. J.*, I (1858), 58.
[24] *Pen. J. Med.*, op. cit., p. 415.
[25] *Pen. and Ind. Med. J.*, op. cit., p. 57.
[26] *Pen. J. Med.*, op. cit., p. 107.
[27] *Ibid.*, (1854-55).
[28] *Ibid.*, p. 498.
[29] *Ibid.*, II (1854), 152.
[30] *Ibid.*, V (1857), 251.

Interest in meteorological conditions spread rapidly in the period 1850-60. "The subject of meteorology," said Dr. Zina Pitcher, in 1856, "has of late years excited a deep interest in the minds of a great variety of classes and the great mass of society."[31] This was to continue until the Civil War conditions turned physicians' attentions to more immediate problems.

System of Meteorological Observation Established by State Board of Health

"From the very first organization of the Board," said Dr. Henry B. Baker, Secretary of the State Board of Health, "it has been considered desirable that a corps of meteorological observers be secured in this state, to supply data for a study of the relations between meteorological conditions and the various diseases and causes of death that are known to be so largely influenced by heat, cold, moisture, and other atmospheric conditions.[32] Prior to the establishment of the Board, the Secretary of State, at the suggestion of Dr. Baker had tried on several occasions to secure meteorological records from each sanitary district of the state.[33] Only two could be obtained, however, one from Prof. R. C. Kedzie of the State Agricultural College, and the other from a Miss F. E. Whelpley of Monroe.[34] At the regular meeting of the State Board of Health on April 13, 1875, it was declared desirable by those present that "at least six stations be established in this State for meteorological observations of this Board.[35] This action followed closely upon a motion made to the effect by Dr. Henry F. Lyster of Detroit.[36]

Letters were subsequently sent to persons in charge of educational institutions about the state in an effort to secure volunteers for this work.[37] The following persons responded and offered to volunteer their services:

[31] *Ibid.*, IV (1856), 107.

[32] *An. Rep.* S. B. H., III, xxxii; according to MacClure there was no systematic attempt to record such statistics throughout Michigan until the movement was started by Dr. Baker in 1870 when he was supervising the compilation of vital statistics in the State Department at Lansing. (MacClure, *op. cit.*, p. 19).

[33] *An. Rep.* Registration of Births, Marriages and Deaths. Secretary of State, 1869, 91.

[34] *Loc. cit.*

[35] *An. Rep.* S. H. B., III, xv.

[36] *Ibid.*, p. xxxvii.

[37] *Ibid.*, p. xvi.

Prof. R. C. Kedzie, Agricultural College, Lansing.
Dr. E. H. Van Deusen, Medical Superintendent, State Asylum for Insane, Kalamazoo.
Lyman P. Alden, Superintendent, State Public School, Coldwater.
Prof. L. McLouth, State Normal School, Ypsilanti.
John Bell, M. D., Benton Harbor.
Hon. Henry F. Thomas, M. D., Allegan.
C. Henri Leonard, M. D., Detroit.
H. T. Calkins, M. D., Fyfe Lake.
S. J. Reeves, M. D., East Tawas.
J. H. Kellogg, M. D., Battle Creek.
C. M. Woodward, M. D., Tecumseh.
Dr. E. Hause, Tecumseh.
W. C. West, M. D., Monroe.[38]

Very obligingly these people agreed to give their services gratuitously to the State Board of Health.[39] Their duties consisted of recording three times daily; namely, at 7 A. M., and 2 P. M., and 9 P. M., temperature, humidity, barometric pressure, clouds, winds, ozone, rain and snow.[40] This they did on blank forms especially devised for this purpose by Prof. R. C. Kedzie.[41] A year's supply was provided each observer.[42] On the reverse side of these blank registers was a set of directions which they were expected to follow.[43] The observer was expected to make monthly reports of his findings to the secretary of the State Board of Health.[44]

Shortly after the plan got under way, the Board asked the observers to record only their findings, leaving the calculations to be done by the office of the secretary of the Board at Lansing.[45] " Those making meteorological observations are deserving of much credit," said Dr. Baker, " because some made observations with instruments purchased by themselves, because they were unpaid, because much attention, time and energy is necessary to make observations three times a day for every day in the year." [46]

[38] *Ibid.*, p. xxxiii; *Ibid.*, IV, ix.
[39] *Ibid.*, IX, 114.
[40] *Ibid., loc. cit.;* IX, 114.
[41] *Ibid.*, III, xvi.
[42] *Ibid.*, IV, x.
[43] *Ibid.*, III, xxxiv.
[44] *Ibid.*, IV, x.
[45] *Ibid.*, VI, xx.
[46] *Loc. cit.*; Prof. W. J. Beal of the State Agricultural College offered the cooperation of the State Pomological Society in the establishment of meterological stations at certain points where none existed. The offer was laid on the table. (*Ibid.*, p. liii.)

In the furtherance of this work the Board made it a policy to supply the observers with as many meteorological instruments as its budget would permit.[47] The first purchase recorded for this purpose was ordered by the Board on July 13, 1875.[48] Thereafter, frequent purchases were made to augment the small number of instruments on hand.[49] "As rapidly as its limited means will allow, the Board is supplying the more important instruments to observers whose records are regularly made and recorded," said Dr. Baker in 1878.[50] These included psychrometers, rain-gauges, wet-bulb thermometers, anemometers, barometers, and ordinary thermometers.[51] In some instances, observers supplied their own equipment.[52]

As interest in these observations increased the number of meteorological observers became greater. Beginning with thirteen observers in 1877,[53] the number was increased to fifteen in 1878,[54] twenty-nine in 1879,[55] and fifty-nine in 1880.[56] From then the number continued at about thirty-two.[57]

During the year ending September 30, 1877, two hundred monthly meteorological registers were received by the Secretary of the State Board of Health; [58] during the following year, 1878, one hundred and eighty-four reports were received; [59] and in 1881 this number increased to three hundred and twenty-nine.[60] This data was taken from these reports by the secretary of the State Board of Health and subsequently compiled and published in the Annual Report of the Board.

At a meeting of the Board on January 7, 1877, the secretary was directed to prepare and publish a statement of the principal meteorological conditions in each year.[61] The first summary of "Principal Meteorological Conditions in Michigan" was published in the Annual

[47] *Ibid., op. cit.*, p. xx.
[48] *Ibid.*, III, xvi.
[49] *Ibid.*, VII, xlviii; *Ibid.*, VIII, xli; *Ibid.*, IX, xlii.
[50] *Ibid.*, VI, xx.
[51] *Loc. cit.*
[52] *Ibid.*, VI, xx.
[53] *Ibid.*, III, xxxiii; Theo. Van Heusen, Sergeant U. S. Signal Service, Detroit, furnished monthly summaries of meteorological data to the State Board of Health.
[54] *Ibid.*, VII, 337.
[55] *Ibid.*, VIII, 305.
[56] *Ibid.*, p. xvii.
[57] *Ibid.*, X, 444.
[58] *Ibid.*, V, xxiii.
[59] *Ibid.*, VI, xviii.
[60] *Ibid.*, XI, xvi.
[61] *Ibid.*, V, lvii.

Report of the State Board of Health for 1878.[62] Thereafter, a summarized report appeared annually. Graphs designed by Dr. Baker were the first used in the annual report of meteorological conditions in the sixth annual report of the Board.[63] With this compilation, comparison was made possible of diseases, deaths, and meteorological conditions.[64] The aforementioned summaries included considerations of humidity, cloudiness, rainfall, ozone, velocity and direction of wind, pressure of the atmosphere, etc.[65]

The relationship of diseases to atmospheric conditions was of interest to several members of the State Board of Health, particularly Prof. R. C. Kedzie, and Dr. H. B. Baker, its secretary. "What relation do these reports of the medical and meteorological observers bear to each other?" asked Dr. Kedzie; "Is there any causal element in the meteorological conditions which produce effects in the sanitary conditions? We shall undoubtedly find that the curves of temperature have a marked control over certain diseases, that a sharp rise of temperature increases diseases of the digestive system, while a rapid fall of the temperature increases diseases of the respiratory system. Statistics from many lands would lead us to expect this in our land. But let us not be content with this meagre result, let us push on to see if other causal relations may not be discovered." [66]

With the publication of annual meteorological reports by the Board, efforts to answer some of the aforementioned questions became intensified. In 1884, Dr. Baker is quoted as saying, "There is no State in the Union, and probably no such area in the world, concerning which the relations which the health of the inhabitants bears to the climate can be written about and studied with reference to the exact facts, so thoroughly as can be done for the State of Michigan." [67] Improved instruments, accurate scientific knowledge, and the opportunity to make observations over a large area provided the State Board of Health with an excellent opportunity to put these problems

[62] *Ibid.*, IX, 403.
[63] *Ibid.*, VI, 241.
[64] *Ibid.*, p. vii.
[65] *Ibid.*, XI, 121.
[66] *Ibid.*, VI, 7; according to MacClure, the meteorological studies of Dr. H. B. Baker were probably the first effort ever made to show a causal relation between atmospheric conditions and mortality from such diseases as pneumonia and croup. (MacClure, *op. cit.*, p. 19.)
[67] *Ibid.*, XIII, 5.

to scientific tests.[68] It's work in this direction soon attracted attention from all parts of the country.[69]

In 1883, Dr. Baker found in an analysis of meteorological reports that the months in which more than the average intermittent fever was reported were those which the mean temperature was above the average for the year.[70] From similar reports, he demonstrated a close relationship between bronchitis, diphtheria and pneumonia, and cold weather.[71] He gave as his explanation for cold weather diseases that "cold caused an abnormal displacement of salts to the superior epithelium of the pharynx causing death of the part which in turn provided an excellent medium for germs to grow in."[72] From comparisons made between the prevalence of disease and velocity of wind, ozone, etc., in 1879, he said, "So far as this evidence bears upon the subject, it would appear that the diseases most increased by filth in the air are diarrhea, dysentery, cholera morbus, and cholera infantum."[73]

Apparently all members of the State Board of Health were not as impressed with the significance of meteorological interpretations as were Drs. Baker and Kedzie.[74] Discontinuance of this work by the State Board of Health was discussed on two different occasions at regular meetings of the Board in 1886.[75] It was Dr. Lyster's opinion, however, that the longer they were continued the more valuable they became.[76]

Commencing with the week ending June 15, 1879, a weekly summary was made of meteorological observations taken at the office of the Board at Lansing.[77] A copy was sent to the Lansing Republican [78] and reprints were subsequently sent weekly to meteorological observers of the Board,[79] to the Chief Signal Officer at Washington, D. C.,[80] and to all persons outside the State who exchanged meteorological data with that office.[81]

[68] *Trans.* M. S. M. S., VIII (1883), 358.
[69] *An. Rep.* S. B. H., XIII, 5.
[70] *Ibid.*, XI, 243.
[71] *Ibid.*, IX, 114; *Trans.* M. S. M. S., V (1887), 57; *An. Rep.* S. B. H., XI, 227; *Ibid.*, p. 226.
[72] *Trans.* M. S. M. S., V (1887), 57.
[73] *An. Rep.* S. B. H., VII, 389.
[74] *Ibid.*, XIV, xxxvii.
[75] *Loc. cit.*
[76] *Loc. cit.*
[77] *Ibid.*, VII, xix.
[78] *Ibid.*, XI, xv.
[79] *Loc. cit.*
[80] *Ibid.*, VII, xix.
[81] *Ibid.*, X, xiii.

Ozone and Disease

Studies by early hygienists revealed varying amounts of ozone in the atmosphere of different localities, and also at different times of the year.[82] It was postulated accordingly that there might be a relationship between the absence of wind and ozone in the summer months to such diseases as diarrhea, dysentery, cholera morbus, and cholera infantum.[83] On the occasion of making his report for the Committee on Vital Statistics before the fifth annual meeting of the State Medical Association, Dr. Henry B. Baker said "Ozone in the atmosphere in excess is understood to cause symptoms analogous to those of influenza."[84] It is likewise of interest to learn that during the cholera scare of 1865 in Detroit, an extensive article appeared in the *Detroit Advertiser and Tribune* describing a method whereby ozone might be manufactured and used as a disinfectant in the prevention of cholera.[85]

Interest in this subject was to continue as the public health movement gradually gained momentum. It is learned that one of the first steps taken to develop a uniform system of observations was begun in 1871 at the suggestion of Dr. Henry B. Baker, who at that time was chairman of the Committee on Vital Statistics of the State Medical Society and Registrar of Vital Statistics of the State. At his suggestion, arrangements were made with Prof. R. C. Kedzie of the State Agricultural College, who also established a post at Olivet College, Prof. N. H. Winchell at Ann Arbor and Miss F. E. Whelpley of Monroe, to make daily observations and keep a record of the relative amount of ozone in the air. To insure uniform results, Prof. Kedzie was asked to prepare the paper for making the tests.[86]

At the sixth annual meeting of the State Medical Society, President H. O. Hitchcock appointed a committee consisting of Drs. R. C. Kedzie, H. B. Baker, and George E. Frothingham to report on ozone and other atmospheric causes and their influence on health and disease.[87]

[82] *Ibid.*, VII, 389.
[83] *Loc. cit.*
[84] *Trans.* M. S. M. S., V (1871), 54.
[85] *Detroit Advertiser and Tribune.*, XXX (September 15, 1865), 1.
[86] *Trans.* M. S. M. S., V (1871), 54.
[87] *Ibid.*, VI (1872), 45.

Further interest in the subject of ozone was attracted by an excellent address made by Prof. Kedzie before the ninth annual meeting of the State Medical Society in 1875.[88] Prof. Kedzie at that time was president of the Society.[89] In his paper he called attention to the possible relation between atmospheric ozone and disease; he also made a plea for additional observers in the state. He stated that, besides himself, Dr. John Bell of Benton Harbor was the only other observer in the state at that time.[90]

Topography and Health

A subject closely akin to ozone and its relationship to health and disease is that of topography and its relation to health. According to the records, one of the first acts of the newly organized State Medical Society in 1853 was to appoint a committee to report on the geographical distribution of diseases in Michigan.[91] Because of the failure of the physicians of the state to cooperate, however, no report could be made the following year at the meeting of the Society.[92]

In 1854, Dr. C. M. Stockwell of Port Huron, Committee on Diseases and Topography of Northeastern Michigan, offered as the reason that Port Huron was unaffected by cholera, that the sand and gravelly soil thereabouts permitted the washing away of fungoid growths, or germs; these having been suggested by Dr. T. W. Mitchell as being the means of its propagation.[93]

In 1858, a report was made by Dr. G. E. Crobin of Stockbridge to the State Medical Society on the Diseases and Topography of Livingston and Ingham counties.[94] At this same meeting Dr. C. M. Stockwell gave an extended description of the diseases and topography of the North-eastern District of the state.[95]

At the annual meeting of the State Medical Society in 1859, Dr. E. Leach read a paper on the Diseases and Topography of Shiawassee County.[96]

On January 25, 1866 the North-Eastern District Medical Society

[88] *Ibid.*, IX (1875), 277.
[89] *Loc. cit.*
[90] *An. Rep.* S. B. H., III, 135.
[91] *Pen. J. Med.*, I (1853), 48.
[92] *Ibid.*, I (1854), 492.
[93] *Pen. and Ind. Med. J.*, I (1858), 142.
[94] *Ibid.*, p. 12.
[95] *Ibid.*, p. 136.
[96] *Ibid.*, I (1859), 702.

appointed a committee of one for each county in the district of Topography and Disease.[97] The following people were appointed to serve in this capacity: Sanilac—Dr. Walter Brown; St. Clair—Dr. G. M. Stockwell; Macomb—P. A. Knight; Oakland—F. B. Galbraith; Lapeer—O. Strowbridge. In July of the same year Dr. Knight, chairman of the Committee, presented an interesting report on the subject before the Society. In his report he called attention to the fact that the only epidemic disease was whooping cough.[98]

Weather conditions also served to interest physicians of this period. In commenting on the "Health of Detroit" for 1857, Dr. Wm. Brodie remarked, "Notwithstanding the variable changes of the temperature and moisture of the atmosphere, and the remarkable character of the winter thus far, our city has never been in such a healthy condition. Certain it is, the ledger of the physicians will show a great falling off in debt and credits compared with the past six winters. 'Misery will seek its companions,' and hence the congregations of Doctors that can at almost any time be found on the corners of the streets, or sitting enjoying a social chat in one another's offices." [99] Zina Pitcher, editor of the *Peninsular Journal of Medicine*, was likewise impressed with the favorable conditions of health existing in 1857,—"We think it questionable whether our city, at all times regarded as one of the healthiest as well as universally pleasantest of western cities, has ever experienced a more genial and salutiferous succession of seasons than those of the present year. Upon this point, physicians, apothecaries and undertakers are unanimously agreed, we believe. In conversation with one of our oldest and busiest sextons of a few days since, he stated that this was his dullest season for many a year." [100]

Climate and Health

With the establishment of the State Board of Health in 1873, these observations of the effect of weather upon community health were scrutinized most carefully. Interest in sanitary climatology, as it was

[97] *Detroit Review Med. and Pharm.*, I (1866), 16.
[98] *Ibid.*, p. 210.
[99] *Pen. J. Med.*, V (1858), 442.
[100] *Ibid.*, V (1857), 160.

referred to, advanced to a remarkable degree.[101] In his report of "Principal Meteorological Conditions in 1884," Dr. H. B. Baker said, "But however slow is the progress in sanitary climatology throughout the United States, in Michigan within the last ten years it has been remarkable, and at the present time there is no state in this Union where so much, in this direction has been accomplished through wise and public-spirited legislation, and especially through the public spirit of physicians and meteorological observers, as has been accomplished in Michigan."[102] His close application to this aspect of the work of the State Board of Health made it possible for him to make many interesting observations.

In 1886, he read an extensive paper on the "Causation of Pneumonia" before the American Climatological Association meeting at Philadelphia.[103] In this paper he pointed out the close relation that existed between temperature curves and those curves showing the incidence of pneumonia.[104] "Whatever relation micro-organisms may sustain to pneumonia," he declared, "the sickness from pneumonia and the mortality from pneumonia, both are quantitatively related to the atmospheric temperature, and to the atmospheric humidity in the locality."[105] These conclusions were drawn from studies made by him of over 150,000 observations of the atmospheric temperature taken from 30,000 weekly reports for sickness.[106]

[101] *Trans.* M. S. M. S., V (1887), 56; regular tri-daily observations of ozone were made at the office of the State Board of Health on the south side of the west wing of the capitol. (*An. Rep.* S. B. H., X, 494.)
[102] *An. Rep.* S. B. H., XIII, 5.
[103] *Ibid.*, XIV, xliii.
[104] *Ibid.*, p. 286.
[105] *Ibid.*, p. 324.
[106] *Ibid.*, p. 252.

BRITISH MEDICINE AND THE OLD VIENNESE SCHOOL

I. FISCHER

Formerly Privatdozent in History of Medicine in the University of Vienna.

At a time when a great many scholars of the Vienna Medical Faculty have had to leave their native country and have found a friendly reception in foreign parts, it may be of interest especially for those now living in Britain to look back at the relations which previously existed between British and Viennese medicine.

Although Vienna was the second university in central Europe, (Prague was founded in 1348, Vienna in 1365) we can hardly speak of scientific medicine in Vienna before the middle of the 18th century. There was, it is true, a Medical Faculty, but teaching and study followed the customary lines of Graeco-Arabic medicine of the Middle Ages. The Hippocratic and Galenic writings served as the foundation of the dissertations and disputations until the 18th century. Even the epoch-making discovery of Harvey did not awaken any particular echo there.

Medicine in the real sense began in Vienna with the reforms in medical studies and the creation of clinics by van Swieten. Flourishing Dutch medicine was transplanted by him to Viennese soil; the scientific spirit and the impetus for research were awakened by him. The work of foreign countries, was brought to the attention of the Viennese Faculty through van Swieten's edition of Boerhaave's Aphorisms which embraced the whole of the then existing medical literature.

Thus it happened that, contrary to the fate of Harvey's discovery in the 17th century, it was in Vienna that the great discovery of Edward Jenner, which still to-day spreads its blessed effects, found its first re-examination and its first partisans on the continent; Vienna has the glory of having been the first continental town, on which not only the first vaccinations were performed, but also furthered with the greatest enthusiasm. Pascal Joseph Ferro performed the first vaccination in Vienna and did it with a piece of thread sent uncovered in a letter. Jenner himself had attached both ends of the thread to a piece of paper and had sent it to an English

physician resident at that time in Vienna. On the 23rd of April 1799 Ferro made the first test on his own three children; in 1801 Carro's book appeared (written in French), dedicated to the British Ambassador to the Viennese Court, Lord Minto. Carro and the Viennese physicians Careno and Portenschlag, with Ferro were the pioneers of vaccination in Vienna and Austria.

While Jenner's vaccination had already found general recognition in Great Britain at the time it was introduced in Austria, we see that another discovery made in Austria, but here ridiculed at first, very soon found its deserved recognition in England. It was an English physician, F. C. Routh, who after witnessing in Vienna the striking results obtained by Semmelweis in the struggle against puerperal fever, immediately on his return became the apostle of Semmelweis' doctrine. The discussion following the paper of Routh in the Royal Medical and Surgical Society of London in 1848 showed that Semmelweis' doctrine was to gain ground in England where the so-called contagionists had already prepared the soil. But perhaps it was due to local patriotism that the differences between the doctrines of Semmelweis and those of the English contagionists were not yet clearly enough understood; the contagionists had recognized the infection only in patients who were suffering from puerperal fever or had died of that disease, but not infection from putrid matter in general.

The epoch-making work of Lister, in reality the practical application of Semmelweis' doctrine, based upon the knowledge of microbes, did not awaken immediate enthusiasm in Vienna. The reason was that Billroth, the most celebrated surgeon in Vienna, could not make up his mind to accept Lister's methods without his own scrupulous examination of their theoretical foundation. I refer to his profound bacteriological studies and his book: "Die Coccobacteria Septica." In the year 1874 he stated: "Antiseptic treatment is to my mind only a potential antiphlegmonous (antiphlogistic) treatment of wounds," but in 1879 he wrote: "It is nonsense if I am reported to be an enemy of Listerism (I am having friendly correspondence with Lister), but I have become more and more an enemy of exaggeration." And it must be mentioned that Billroth always permitted the experiments of his disciples in anti-

sepsis and that other surgeons in Vienna adopted Lister's treatment.

An interchange of Austrian and English students at English or Austrian universities did not commonly exist at the time, the reason was not only the difference in language, but chiefly the difference in the curricula of the English and Austrian schools and in their examinations. Some physicians of each country visited the other in order to get acquainted with the medical conditions. Many of the younger English doctors came especially for post-graduate study in ophthalmology, laryngology, otology and dermatology. At the time when Vienna was considered the Mecca of physicians of the whole world, at the acme of the glory of the so-called Second Viennese School, quite a number of young English physicians came to Vienna; the number of Viennese physicians who went to England was much smaller. It must, however, be admitted that in the last decades of the 19th century Berlin became a serious competitor of Vienna and attracted many English physicians. Osler, a man whose life and work should be familiar to every physician living on English soil, once stated metaphorically that Minerva Medica always settled in that place where she was served with full devotion and fervor and that, curiously enough, the glory of medical centers did not last more than one or two generations. Her first settlement was in Italy, her next Paris, later the Netherlands, next Vienna, then, for inexplicable reasons, Berlin. But I dare say that the reasons were not so inexplicable and that it was only the theoretical branches (bacteriology, serology) which put Vienna into the background while in the clinical branches Vienna still upheld its fame.

After these necessarily brief medical relations in general, I should like to mention some individual and personal remarks made by British visitors in the early 19th century.

The first of these visitors—a name familiar to every physician—is Richard Bright. Bright's report is dated the year of the Vienna Congress, 1814, when he was 25 years old. His book " Travels from Vienna through Lower Hungary " was published in 1818 when he was assistant physician at the Fever Hospital in London. His description of relation of the albumen in the urine to disease of the kidney appeared in 1827. Bright, a man of wide knowledge of natural sciences and a connoisseur of art, showed great interest in

the botanical and zoological institutes and their chiefs, Jacquim, Jr., and Bremser. He was surprised that so many of the most famous physicians of Vienna were foreigners like the German Peter Frank, Jean de Carro from Geneva, the Italians Malfatti and Capellini. He appreciated the great merits and the vast learning of Frank, especially his celebrated work "Medicinische Polizey"; he also appreciated highly Carro's merits in the introduction of vaccination. "De Carro," he writes, "now laboured sedulously to propagate the discovery through the whole of Europe. His efforts were attended with the most satisfactory results and his writing became the standard authority upon the subject. This, however, was but a small part of the benefit which he conferred upon mankind; for, after applying himself with unremitting zeal, he at length succeeded in introducing this great discovery into the British possessions and other remote countries of the East. This he effected by transmissions of the virus over land. His labours in this most meritorious work have called forth the grateful acknowledgments of the many countries which have benefitted by them, and will remain a lasting memorial to his honour." Bright mentions the world-wide fame of Joseph Beer, professor of ophthalmology, and the merits of Count Dr. Karl Boromaeus Harrach for his medical knowledge as well as for his humanitarian efforts. Bright describes the anatomical collections, the clinics, the wards of the "Allgemeines Krankenhaus," the Josephinum, the Foundling-Institute, the Lying-in-Hospital and the Tower of the Lunatics, the construction and management of which provoke quite justifiably, his only adverse criticism. He illustrates the strict regulations concerning apothecary shops in Austria in an episode he himself experienced. He relates: "As I walked along the Coerntner Strasse one evening, feeling slightly indisposed, I entered a shop and made civil application for a most harmless remedy. The written prescription was immediately demanded. I had none but at once wrote it for the druggist's satisfaction. The signature was scrutinized and the name demanded. A printed register of practitioners authorized by the government was examined and my name, of course, not found. Neither explanation nor entreaty could avail; and, surrounded by medicines, the only assistance I could procure was a direction to the abode of the nearest

authorized prescriber. Fortunately all the venders of drugs in Vienna were not equally conscientious. I obtained my medicine from another, and never again met with a similar refusal. My uncourteous druggist, however, did but strictly obey the well-intentioned injunctions of the government."

Anonymous "Sketches of the Medical School in Vienna," in the *Quarterly Journal of Foreign Medicine and Surgery* appeared in 1818, in the same year as Bright's book. We see by a remark of a later writer that the author of these "Sketches" was William Mackenzie, later a celebrated oculist in Glasgow. Mackenzie describes the Viennese Medical School, although it was already in its decline at that time, as a "medical school of the very first rank." He admires especially the clinics of internal medicine, of ophthalmology and of obstetrics for "their admirable arrangements" and he emphasizes the scientific importance of Prochaska, whose injected anatomical specimens are praised by him as well as by Bright. Concerning the clinic for internal diseases he notes the absence of separate smaller rooms for infectious diseases and for hydrophobia, and of separate wards for children, and for patients with venereal diseases. He praises the point of view of Professor Valentin von Hildenbrand, "that dietetic means of cure are of greater value than pharmaceutic." You see from this remark that the so-called scepticism of the Viennese School is older than Rokitansky and Skoda, usually considered as the founders of "Viennese Nihilism."

Concerning the surgeons represented in Vienna mostly by the "Land und Wundärzte," men educated in the Lyceums, medico-chirurgical schools of lower rank, Mackenzie quotes a sentence of the famous Soemmerring, whom he had heard in Munich, "that luckily in England surgery was studied by gentlemen." He is, however, full of praise for the surgical clinic of Professor Kern, especially for its simple treatment of wounds, saying, "His school may well be called the School of Nature." He cannot sufficiently admire Professor Beer—and that is perhaps the reason of his later devotion to ophthalmology; he says: "Vienna is at present the most celebrated school for surgery of the eye in Germany." Boër, the creator of "natural" obstetrics in Germany, is called by Mackenzie a partisan of the English school: "he scoffs at instruments and like

Dr. William Hunter sums up his advice for different cases in the word, Patience." I myself remember that in my student years the jocular advice was given to students to answer every question in the obstetrical examination with the word, "Wait." Concerning the wax-works in the Josephinum, Mackenzie makes the pertinent remark that they are more suitable for the instruction of grand dukes and emperors or to afford an hour's amusement to any honest citizen than for the study of anatomy by a medical student. He also mentions the Institute for sick children in Vienna, although it was only a dispensary, not a real hospital.

Another report was made by William Wilde, who in 1834 devoted a whole book of more than 300 pages to the medical institutions of Austria: "Austria, its literary, scientific and medical institutions with notes upon the present state of science and a guide to the hospitals and sanatory establishments of Vienna." The book, which appeared in Dublin, was dedicated to an eminent Viennese and to a famous British physician, Friedrich Jaeger, professor of ophthalmology, and Robert Graves, the celebrated clinician. Here it may be said, that Graves himself during his continental tour was arrested in Austria for ten days as a German spy on account of his fluency as a linguist. Wilde, later Sir William Wilde, a famous ophthalmologist and otologist in Dublin, was the founder of St. Mark's Hospital for Diseases of the Eye and Ear in that town, built by him with the first 1000 pounds he had saved from his practice. He was also the founder of the *Dublin Quarterly Journal of Medicine* and, incidentally, the father of Oscar Wilde. Wilde introduces us to the beginnings of the Second Viennese Medical School. It is, however, impossible for me to discuss at length the contents of this extensive book, based on official reports and statistical tables. I must restrict myself to a few words. Wilde already speaks of the "younger school of Vienna." He emphasizes the important role of Rokitansky and Skoda—he calls the hospital ward of Skoda a stethoscopic clinic—and declares that clinical education in Vienna is much better than elsewhere and he admires especially the high standards of ophthalmology. In spite of the rich material, anatomy was in his opinion not up to date, and concerning physiology he says; "Physiology was never more than a name in Austria." He makes

the " Wundarzneiwesen " responsible for the lower state of surgery, while he recommends the strictly regulated curriculum of medical studies and pharmaceutics as a model for England. In general the regime was responsible for the fact that medicine in Vienna was not developed as it ought to have been. " I do firmly believe," he writes, " that were the barrier that now dams up the streams of learning at its source but once removed, Vienna would pour forth a flood of light that would soon rival any capital in Europe."

In conclusion, a few words about Lister's visit to Vienna on his wedding-trip in 1856, ten years before his great discovery of antiseptic methods. Lister wrote that the medical school in Vienna was the largest and the most important one he had yet seen and he praised especially Professor Rokitansky as the most eminent pathologist in the world. The latter spent three and a half hours in going through his wonderful museum containing pathological specimens, and demonstrated them to Lister and other visitors. As an illustration of the manners of that time, a passage from a letter of Mrs. Lister might perhaps be of interest, especially to women. Mr. and Mrs. Lister were invited to supper at Rokitansky's. Mrs. Lister writes: " We were very glad to have such a good opportunity of seeing a little of German private life and found the manners and customs in many respects very similar to our own. The supper, however, was quite German. The inhabitants of Vienna of all classes dine in the middle of the day, consequently the evening meal is not an important affair. . . . To begin with, a dish of powerfully salted ham, cut into slices, was handed round. Then followed roast goose, accompanied by potatoes curiously prepared, and French beans dressed in something very sour. Lastly came cheese and cucumbers. Rye bread and beer formed a not inconspicuous part of the repast. The beer was put on the table in immense glass jugs and drunk out of mugs of similar ware, smaller of course, though still very large. But the supper itself was not so remarkable as was the Germans' enjoyment of it."

Lack of space does not permit me to mention all the minor incidental notes about Viennese medicine in British journals and about British medicine in Viennese journals. Just a few more remarks.

We know that in 1750 Professor Johann Nepomuk Crantz, a

famous obstetrician and pharmacologist, was sent by the Empress Maria Theresa to London to round out his medical studies; in 1780 Emperor Joseph II sent Lucas Johann Boër to Great Britain where he stayed nine months and visited London, Edinburgh and Dublin. But we have no reports by them. I know of only one extensive report by Franz Hektor von Arneth, confined to a special branch of medicine: "Die Geburtshilfe in Frankreich und England." In 1850 Arneth visited the lying-in-hospitals in Great Britain and his book is of importance for the history of antisepsis and asepsis in obstetrics, explaining thoroughly the doctrines of the contagionists, mentioned earlier in this paper.

I am conscious that this short sketch gives only an incomplete picture of the relations between British and Viennese medicine. The generous hospitality accorded Viennese physicians now in England will go far toward renewing that earlier connection as they become familiar with the admirable progress of British medicine both in theory and in practice. I can only express the hope that the Viennese physicians, educated and instructed in the spirit of the Viennese Medical School, may in return contribute their share to the development of British medicine.

REFLECTIONS ON THE MEDICAL BOOK AND JOURNAL SITUATION

WILBURT C. DAVISON *

These reflections, which also may apply to publications in other fields, are presented with some hesitation, although as Osler stated " Only a maker of books can appreciate the labours of others at their true value." [1]

1. *History of the present dilemma*: Because of the number, size and price of medical books, practitioners and students are unable either physically to cope with the supply or financially to purchase the necessary ones. The difficulty of separating the wheat from the chaff is tremendous. No physician can read all of the current literature in his specialty and retain his reason.[2] Accurate records were not kept until 1879, when the *Index Medicus* was founded; hence an absolutely correct analysis of the growth of American medical literature is impossible. However, as shown in Graph I, the figures compiled by the Committee on Medical Literature from 1848 to 1873,[3-6, 10] the Billings report,[7] the *Publishers' Weekly*,[8] and the *Cumulative Index to Current Medical Literature* [9] indicate that medical literature, like everything else in this country, started from nothing, went through a period of struggle, then of encouragement and protection, and finally of over-production.

Early medical publishing was sporadic. It appeared usually in the form of pamphlets, frequently controversial, or in reprinted addresses

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and sermons, for the early ministers concerned themselves with the care of bodies as well as souls. Some of them attained considerable scientific knowledge, as for example, John Wesley's " Desideratum; or Electricity Made Plain and Useful, By a Lover of Medicine and Common Sense," published by Pine in Bristol, Eng., in 1771. There were no early publishers specializing in medical work. The author took his manuscript to any available printer and after it attained popularity it was only too likely to be copied by printers elsewhere. The first American medical publication which is recorded was a sermon by the Reverend Dr. Thomas Thacher, of Boston, published by Foster in Boston in 1677 and entitled " A Brief Rule to Guide the Common People of New England How to Order Themselves and Theirs in the Small Pocks or Measels," [11] " The English Physician and Complete Herbal " by Nicholas Culpeper was published or republished in Boston in 1708. During the remainder of the eighteenth century, although there were numerous and evanescent pamphlets, only twenty-two American medical books appeared, including in 1730 the first popular work on self-medication, " American Instructor or the Young Men's Best Companion, To Which is Added, the Poor Planter's Physician; with Prudent Advice to Young Tradesmen." This book became so popular that Benjamin Franklin, in 1734, helped himself to it and reprinted it as "Every Man His Own Doctor; or the Poor Planters' Physician, Prescribing Plain and Easy Means for Persons to Cure Themselves of all, or most of the Distempers Incident to this Climate, and with very little Charge, the Medicines being chiefly of the Growth and Production of this Country." It circulated throughout all the colonies. In 1775, appeared what probably was the most useful and scientific book that had yet been published: " Plain, Concise Practical Remarks on the Treatment of Wounds and Fractures; to which is Added a Short Appendix on Camp and Military Hospitals, Principally Designed for the Use of Young Military Surgeons in North America " by John Jones and published by Holt in New York.

With the outbreak of the Revolutionary War, medical publication seems to have ceased, and, except for Benjamin Rush's " Medical Inquiries and Observations " in 1789,[12] it was not until the turn of the century that medical literature blossomed again in the form of

journals.[18] The medical profession soon became concerned over an adequate supply of American medical literature, in contrast to our present problem of curbing the torrent. At its first meeting in 1847, the American Medical Association appointed a Committee on Medical Literature consisting of Oliver Wendell Holmes, chairman, Enoch Hale, G. C. Shattuck, Jr., Daniel Drake, John Bell, Austin Flint, and W. Selden to prepare "an annual report on the general character of the periodical medical publications, on medical compilations and compends by American writers, on American reprints of foreign medical works, and on all such measures as may be deemed advisable for encouraging and maintaining a national literature of our own." [19]

This Committee on Medical Literature surveyed the field prior to 1848, and mentioned 33 medical journals published for variable periods between 1797 and 1848, the earliest of which were the *New York Medical Repository* in 1797, *Philadelphia Medical Museum* (1804), *Philadelphia Medical and Physical Journal* (1804), *Medical and Agricultural Register* (Boston, 1806), *Baltimore Medical and Physical Recorder* (1806), *American Medical and Philosophical Register* (N. Y., 1810), *Eclectic Repertory* (Phila., 1811), *New England Journal of Medicine and Surgery* (Boston, 1812) and the *American Medical Recorder* (Phila., 1818), which in 1829 merged into the *American Journal of the Medical Sciences.* This committee also took a "retrospective glance at the more prominent medical works published in this country" from 1800 to 1848, and although they did not pretend to give a complete catalog, they mentioned 333 books in 18 branches of medicine (Table 1), including the "Experiments and Observations on the Gastric Juice and the Physiology of Digestion" by William Beaumont (1833), which the committee stated "should be mentioned as the most valuable contribution America has yet presented to physiological science." [19]

In 1849, a special "Committee for the Encouragement and Maintenance of a national Medical Literature" was appointed.[8] Its recommendations were: "That the only legitimate means within our reach for the encouragement and maintenance of a National Medical Literature are to increase the standard of preliminary and professional education required of those who would enter the medical profession; to promote the circulation among the members of the profession of the

medical journals of the day; to encourage the establishment of district medical libraries, and to induce every practitioner to cultivate, with care, the fields of observation and research that are within his reach, and to increase in our midst the number of those competent to produce works calculated to add to the stock of professional knowledge." [14] The committee also recommended the training of medical students in writing and the offering of prizes by medical schools and state medical societies for the best theses and essays, but it frowned upon the suggestion of a central committee which would censor and suppress weak manuscripts and superintend the publication of worthy ones, because of the difficulty of finding a qualified committee, of "the ill-feeling and resentment that will be engendered in the breasts of those whose works are rejected, and because there would be no difficulty in finding booksellers who would be willing to undertake their publication and compensate the authors, inasmuch as the expense of printing and disposing of such works would be considerably less to a bookseller than to the Association." [14]

By 1873, either from natural causes or as the result of the report of the Committee for the Encouragement and Maintenance of a National Medical Literature, the number of journals and books had increased to such an extent that the Committee on Medical Literature threw up its hands and disbanded in the face of the growing avalanche of publication.[6] Their final report clearly depicted our present situation: "The growth of the medical literature of the United States, in the twenty-five years since this Association was organized, must be gratifying to the pride of every American physician. Going back only a quarter of a century beyond the date referred to, we reach a period in the history of our country when it was nearly destitute of original works on medicine, and we were almost entirely dependent, as a profession, upon European surgeons and physicians for instruction. At the present time it is not arrogant to say, that, in this respect, we are independent of the world. If an embargo were laid to-day upon all foreign medical works, our own authors would supply all the text-books required by our students, and furnish guides to the practitioner in all departments of medicine. Nor should we be charged with vainglorioussness, we believe, if we went further and affirmed, that for clearness and fullness of information on all practical points—as

exponents of the existing art and science of medicine—they would compare favorably with the best writings of our brethren abroad on the same subjects. . . . The rivulet which constituted our literature at the beginning of the century has swollen into a torrent—augmented into a river—expanded into a sea. . . . Nay, there are those who are already beginning to cry out for a flash of splendid silence. . . . We may rest assured, therefore, that with us, "of making many books there is no end," [15] while medical books are called for by the necessities of men. . . . The number of medical journals issued in the United States at this time exceeds forty. A few have been discontinued, and a somewhat greater number have come out in their room. Those which have ceased to appear are the *Journal of the Gynaecological Society of Boston*, and the *Psychological Journal of Medicine*. The failure of publications possessing the high literary and professional merits of the two journals just mentioned, indicates, it would seem, that the profession, much as it is disposed to favor a subdivision of labor in it, is not yet ready to sustain works devoted to specialties." [6] Imagine the amazement of the members of the Committee if they knew that in 1935 of the 203 medical journals published in the United States, 133 or 65 per cent were devoted to the specialties.

In 1881, John S. Billings, the principal founder of the Surgeon-General's Library, splendidly summarized the medical book situation up to that time: "It is usual to estimate that about one-thirtieth part of the whole mass of the world's literature belongs to medicine and its allied sciences, and our medical literature now forms a little over 120,000 volumes properly so called, and about twice that number of pamphlets, and this accumulation is now increasing at the rate of about 1,500 volumes and 2,500 pamphlets yearly. Of the 180,000 medical men scattered over the earth, about 11,600 are producers of, or contributors to, this literature, being divided as follows: United States, 2,800; France and her Colonies, 2,600; the German Empire and Austro-Hungary, 2,300; Great Britain and her Colonies, 2,000; Italy, 600; Spain, 300; all others, 1,000. In 1879, 1,643 medical books and pamphlets were published: France 541; Germany 364; United States 310; Great Britain 182; all others 246." [7]

Dr. Billings's comment in 1881 on the content of some of these publications sounds surprisingly like many of the modern complaints

about medical research: " Science is becoming popular, even fashionable, and some of its would-be votaries rival the devotees of modern aestheticism in their dislike and fear of the sunlight of comprehensibility and common sense. The languid scientific swell who thinks it bad style to be practical, who takes no interest in anything but pure science, and makes it a point to refrain from any investigations which might lead to useful results lest he might be confounded with mere practical men or inventors, exists and has his admirers. We have such in medicine, and their number will increase. . . . But are not the physiologists, or as I believe they prefer to be called, the biologists, separating themselves too completely from medicine for the best interests of their own science, in that they are neglecting human pathology? The physiologist of the present, who confines himself to laboratory work, will find himself distanced by the man who keeps his clinical and pathological studies and his experimental work well abreast." [7]

The rise of our medical literature is even greater than that indicated in Graph I, because many of the earlier figures, as well as those reported for 1879 and 1880, included pamphlets. As a matter of fact, many of our present books should be pamphlets rather than large books. In the United States the number of medical books published annually including new editions and translations, has increased from 42 in 1849 (17 original books, 6 pamphlets, 5 translations, 11 republications, 3 new editions) [5] to a peak of 402 in 1929.[8] From 1929 to 1935 a sharp decline occurred, but it was followed by a rapid recovery in 1937 to the high water mark of 485 medical books, including new editions. Except for a dip the next two years this output has been maintained. Had it not been for the depression, the curve of increasing medical books published annually in the United States since 1848 would have been almost a straight line (Graph I). The " flash of splendid silence," which seemed desirable in 1873, should be reconsidered today.

2. *Possible reasons for this growth*: During this period of 88 years, from 1849 to 1937, the number of medical books published annually expanded by 1,155 per cent while our population grew only 556 per cent from 23,260,638 to 129,257,000,[16] and the medical profession 418 per cent from 40,564 [17] to 169,628.[18] This amazing

increase in medical literature probably is no greater than that of books in law, engineering, social science, history, English, chemistry, etc.

Although the rate of growth of medical books has been double that of the population and medical profession, it may be parallel to that of the increase in the educated public and learned physicians. The rise may be an index of the mental development of the profession. Perhaps if the 1847 group had the present teaching, library and laboratory facilities, and the modern knowledge of apparatus, instruments and statistics they might have produced a greater quantity and quality of books, for the early physicians are said to have been able to think more realistically and independently than many of those today.[19]

The accumulated mass of medical knowledge, which has grown by leaps and bounds since 1847, probably is the most important factor in the increase in the annual number of books. As the science departments and research work of the universities grew, the greater became the demand for publication. On some faculties, members were expected to produce the printed word regularly. In addition to this desire of some universities for authorship publicity, there has been duplicate, triplicate, etc. medical research in many institutions with a jealous desire for publication priority. In 1847, a very "littel boke" could have contained all of the knowledge of bacteriology, immunology, virus diseases, protozoology, microbiology, biochemistry, etc.; now several large ones are necessary.[19] Up to 1893, 7,000 books and articles had been published on syphilis, from 1893-1912 14,000 more appeared, and since 1912, 21,000 additional ones have been printed.[20] 34,000 publications on tuberculosis appeared between 1893 and 1932. In 1914, vitamins were discovered and during the next 18 years, 1,000 books and articles were published.[20] After Keefer demonstrated Brucella as the cause of prolonged fever in 1924,[21] the annual average of publications on brucellosis has increased from ten articles to over 200.[22]

The increase in medical journals issued in the United States from 33 prior to 1848 to 213 in 1940, also has developed more medical writings, has trained physicians to greater facility in writing, and has produced a background for an increase in medical authors.[19] However, this rapid growth of medical journals, many of which are not

self-supporting, but are assisted by membership dues of various medical societies, has even outstripped the supply of material, and some authors are tempted to publish the same article in several journals. One contributor had the same paper in six different periodicals.[23] Many of the medical books published today probably should have remained as articles in medical journals.

Possibly the larger number of people receiving advanced education also has much to do with the increase in the number and size of books. This growth probably parallels the increase in school and college attendance, and the general elevation of the educational level of the population. In 1847, colleges were scattered here and there, while now a half dozen of the today's 600 colleges could accommodate the whole 1847 population. In 1876, the public school enrollment was 8,869,000 and the amount spent per student was $9.37; in 1936 the corresponding figures had grown to 26,367,000 and $74.67.[19] Since 1847, many men have quit farming, sailing, soldiering, storekeeping, etc. and have gone into the professions and sciences.[19] As this larger educated class has come to the front and the requirements of medical schools and of practice have increased, the urge to write books has increased.

At present, although some means to reduce the supply and price of medical books and superfluous journals, and stricter editing are desirable,[24] censorship by a "central committee" would be no more successful than it was in 1850.[14] The publishers are more competent than anyone else to censor books. As was stated by the Committee for the Encouragement of Medical Literature in 1850: "Every respectable publisher has within his reach the means of acquiring a very accurate acquaintance with the value of a medical work offered to him for publication, and probably, a much better opportunity of determining the probable chance of disposing of an edition of it." [14] Although publishers are constantly on the lookout for a better book,[2] many of them reject 90 per cent of the manuscripts offered. However, some unnecessary books are printed, and an occasional publisher encourages a book in an already overcrowded field merely "to complete his own line" in this subject. Sometimes a good book is written because a publisher asks an author to produce it but too often it is a "pot-boiler." [26] Perhaps controlled production cannot be applied

to medical books as easily as to tobacco, cotton and hogs. It may not even be desirable, for just as the encouragement of medical literature in 1850 [14] may have been responsible for the present overproduction, so any restrictive interference with the laws of supply and demand might lead to a literary famine in the next generation.

3. *The increasing size of medical books* is an equally great problem. In addition to the great weight of the glazed paper used by most American publishers which makes readers weary and round-shouldered, the number of pages is excessive. For example, the first edition of Osler's Principles and Practice of Medicine in 1892 had 1050 pages, exclusive of the index, and the twelfth edition in 1935 had 1155. The first editions of Holt's "Diseases of Infancy and Childhood" and of Williams's "Obstetrics" had 1092 and 845 pages respectively, while their last editions had 1191 and 1269. Cecil's "Textbook of Medicine" has increased from 1500 to 1664 pages in three editions. Many publishers do not favor too large or too highly priced books, and cooperation from authors and editors would help this situation.[19] It is just as much the duty of an authority on a subject to condense, summarize and analyze his contributions for the sake of his less learned readers, as it is to increase the store of knowledge. Nothnagel once said that the greatest scientific contributions to medicine seldom covered more than a few pages.[2] Or as Billings put it, "First have something to say, say it as briefly as possible, and stop when you have said it." [7] Abel, Cushing, Osler, Hektoen and others made statements concisely but few authors seem to have this knack; neither they nor their instructors have stressed the desirability of brevity.[19] Some authors are apt to make their contributions long because length has the air of being more learned; what could be said in a dozen pages is spread out to cover 100.[2] However, the late John Howland's first comment on reading any manuscript written by a member of his staff was "Cut it in half." Protests that reduction was impossible were of no avail, and the paper would be shortened by 50 per cent and usually correspondingly improved. Dr. Howland would then insist on another deflation and the final published paper generally was one-quarter of its original length. I am sure he

would have reduced this present paper even more; in fact, he probably would not have allowed its publication as he despised loquaciousness.*

Shorter medical books are needed. The growing mass of medical knowledge should be concisely summarized. Medical, pediatric, obstetric and other year-books and annuals are attempting this task but unfortunately too often, though not always, they are mere reviews of the past year's contribution to the problem rather than a carefully edited up-to-date digest of the subject which is of practical value to the practitioners and students who need it. The details of this expanding wealth of information should be recorded and stored in medical and scientific journals and not reproduced or "re-hashed" in textbooks, with little digestion and condensation, as is the too usual custom. There has been some reaction to these larger and more expensive books. For example, 80 per cent of the Duke medical students prefer an anatomical textbook of 761 pages, costing $6 to those of 1332 to 2049 pages respectively, costing $10. Their instruc-

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* ADVICE TO AUTHORS [35]

If you've got a thought that's happy—
Boil it down.
Make it short and crisp, and snappy—
Boil it down.
When your brain its coin has minted,
Down the page your pen has sprinted,
If you want your effort printed,
Boil it down.

Take out every surplus letter—
Boil it down.
Fewer syllables the better—
Boil it down.
Make your meaning plain—express it,
So we'll know—not merely guess it,
Then, my friend, ere you address it,
Boil it down.

Cut out all the extra trimmings—
Boil it down.
Skim it well—then skim the skimmings—
Boil it down.
When you're sure 'twould be a sin to
Cut another sentence in two,
Send it on, and we'll begin to—
Boil it down.

tors noticed that these students used the shorter book more extensively, and had a more rapid and early accumulation of facts than did the minority who studied the more voluminous volumes.[26]

4. *The increasing price of medical books*: Though the price of Cecil's "Textbook of Medicine" has remained at $9, those of the others mentioned have increased; the first edition of Osler cost $5.50 and the last $8.50, while the first and last editions of both Holt and Williams were priced at $6 and $10 respectively, an average increase of 62 per cent. Even medical dictionaries have followed this cycle, the first edition of Dorland's "Medical Dictionary" in 1901, had 770 pages and cost $5 while the sixteenth edition in 1932 had 1493 pages and the price was $7.50.

These statements do not imply that medical publishers make huge profits—most of them do not. Labor, paper, machines, special type characters, illustrations, rent, etc. are all higher than in 1847. A modern supply of special characters alone represents a larger investment than the total cost of all the mechanical equipment in the printing house of 1847. In the last few years, the manufacturing cost of books has advanced approximately 25 per cent, and the advertising rates in medical journals have risen to an even greater extent.[27] In addition, book buyers today receive far better quality in reproduction and presswork. For example, the value, page for page, of W. H. Byford's "Treatise on the Theory and Practice of Obstetrics" of 457 pages for $5.00 in 1870 was less and the cost per page unit was greater than those of F. L. Adair's and E. J. Steiglitz' "Obstetric Medicine" of 734 pages at $8.00 in 1934.[19]

The expense in marketing is an important factor in the cost of medical books as in every other commodity.[27] The usual discount given to bookstores is 20 to 40 per cent, but most medical publishers also maintain travelling agents who call on the profession. Their commissions range from 30 to 50 per cent. Furthermore, many of these agent's sales are on a time credit basis which probably adds another 10 per cent to the cost. Medical teachers by demanding free copies and special discounts also are adding to the expense of books to practitioners and students.[19] The selling of books to physicians and students by high pressure salesmen usually is a successful method of distribution, but in addition to being expensive for the publisher and

purchaser, it may often force a book into unwilling hands. Generally, unless a physician really needs and desires a book, he does not read it or benefit from it. In addition, the profession, in the last analysis, pays for this high cost of distribution. In the sale of one book, the commissions to travelling salesmen averaged 30 per cent of the price, direct mail order selling 25 per cent and bookstore sales 20 per cent. One medical publisher recently has adopted lower cost distribution methods, and as a result has been able to sell books at lower prices and better profits, even though a descriptive circular is believed to be unable to overcome the "sales resistance" engendered by mere inertia on the part of the potential buyer.[26] Unfortunately, mail order selling, though desirable, has not been successful for many books. The organized book-selling business with its wholesalers and retailers seems to be necessary, and book-dealers cannot exist without profits.[27] Publishers might profitably extend the old custom of publishing books by subscription as was done with the first editions of Osler's "Principles and Practice of Medicine" in 1892 and of Holt's "Diseases of Infancy and Childhood" in 1897.

Another potent reason for the plethora and high cost of medical books is that their publication is a financial gamble, and for every book which brings a profit to the producer and author, there are several which remain in the red. The cost of printing and carrying books for which there is little demand is one of the major causes for the present high prices.[19] Obviously then, a publisher must encourage many books in order to obtain an occasional winner, like a race track "speculator" who places his money on several horses. Expensive works and monographs on special subjects of limited sale either should be condensed to review articles for journals or be mimeographed or lithoprinted. An additional cause for the present cost of books is that the publisher must set his price high enough so that the sale of a few hundred copies will carry the cost of the entire edition. For example, if 3,000 copies are published at a total cost of $6,000,** the price usually is placed at $5.00 or more with the hope

** 3,000 copies of a 300 page book usually can be printed and bound for $2,000, but the total publication and distribution costs usually are at least three times this figure or $6,000, i. e. $2,000 for printing, $3,000 for editing, packing, handling and overhead, and $1,000 for advertising and circularization.[20] For a fairly exhaustive

that the sale of half of the edition will clear the ledger. The profit, if any, comes in the sale of the last several hundred copies, usually 10 per cent of an edition. Unfortunately, however, if the book is a winner, a second larger and more expensive edition generally is published.

Authors and publishers together should keep prices down. The lower the price of medical books, the greater will be their benefit to the medical profession because of their increased reading and use of books. Authors and publishers often are equally responsible for high prices. One author said that the price of his book was placed at $10 because a similar book was listed at $10, and as a matter of pride he did not wish his to be cheaper. A publisher stated that one of his books would make a good profit at $7.50, but that his sales manager estimated the sales would be equally good at $10 so he charged all that he thought the traffic would bear.

One of the ways by which prices can be kept down is by having the author finance his own book. It is true that if the author, rather than the publisher, stood the financial hazard, many worthy books might not appear in print, but it also is true that many useless ones would not clutter the shelves of the libraries and dealers. As a result, more of the worthy books could be sold at lower prices as they would not be carrying the expense of the duds. Many publishers, medical bookstores and university presses are glad to handle books if the author will guarantee them against loss. Other publishers discourage the author-financing of books as being too great a speculation for all concerned,[19] and perhaps working more harm scientifically and culturally to medical book publishing than the evil of high prices it is designed to correct.[20] It would seem eminently fair that authors should finance their own books. If sales are good, their profits will be higher, as very few authors realize much from the usual publishers' royalties.† If the book is not well received and does not pay its cost,

Surgery or Obstetrics, illustrations alone may well cost $3,000, manufacturing costs another $6,000, promotion $2,000, and shipping expense and sundries another $1,000,—a total of $12,000.[20]

† "The public, accustomed to reading of royalties from "best-sellers," has a vague idea of a substantial income accruing from authorship. It will be news to learn that, as a matter of fact, medical writing is a total loss except for any little reputation as an authority that may be acquired by the author. Medicine is con-

the author has had enough fun in writing it and has sufficiently improved his knowledge of the subject to compensate him for his financial loss. Someone has said that the best way to acquire knowledge is to try to teach or to write a book. It certainly is not fair that practitioners and students should pay high prices for books so that the losses of unsuccessful ones can be absorbed. An example of author-financing and author-ownership of the copyright which has kept prices down is Dr. Charles H. May's " Manual of the Diseases of the Eye "; the 1st edition in 1900 contained 406 pages and cost $1.75, the 10th edition in 1922 contained 440 pages and cost $3.50, and the 16th edition in 1939 contained 515 pages but the price had only increased to $4. The greatest objection to author-financing is the amount of money involved, some of the larger books requiring an outlay of $12,000 for printing, binding, promotion, shipping, etc.** A publisher is insured by his issuance of a considerable number of titles annually, the successes carrying the failures.[28] Perhaps Universities and Learned Societies could subsidize the good manuscripts of authors without resources.

5. *Summary*: The number of medical books published annually in the United States has grown from 42 in 1849 to 485 in 1937, and the number of medical journals has risen from 33 published prior to 1848 to 213 in 1940. Both the books and journals have been greatly

stantly progressing. After the manuscript has gone to the publisher a case with new features is encountered. The medical author feels it urgent to insert in the proofs a report of the case, or to insert a sentence to include the newly observed fact, or to modify a statement. As stated in the preface to " Peroral Endoscopy," [21] the writing of a busy clinician is done under stress of limited time and opportunity. He has not the time to rewrite sentences many times, as Macaulay did, in the search for better sentence structure. Better phraseology often comes to mind and errors in manuscript are detected in reading proofs. A charge is made for any sentence, period, or comma added or deleted in proofs; these printers' charges alone usually more than consume all royalties. Doubtless the medical book publishers are fully justified by the exigencies of business; but the fact remains that medical authorship does not yield direct reimbursement for paper and postage, to say nothing of secretarial expenses." [28] Even novels are not very lucrative to an author who usually receives $0.32 per copy of a $2.50 book. Only half of them sell more than 2,500 copies ($800 to the author), and only one in ten goes above 20,000 copies ($6,400 royalty). Publishers figure nine duds to one best-seller; their business is part sweepstakes lottery, part humanitarian.[28]

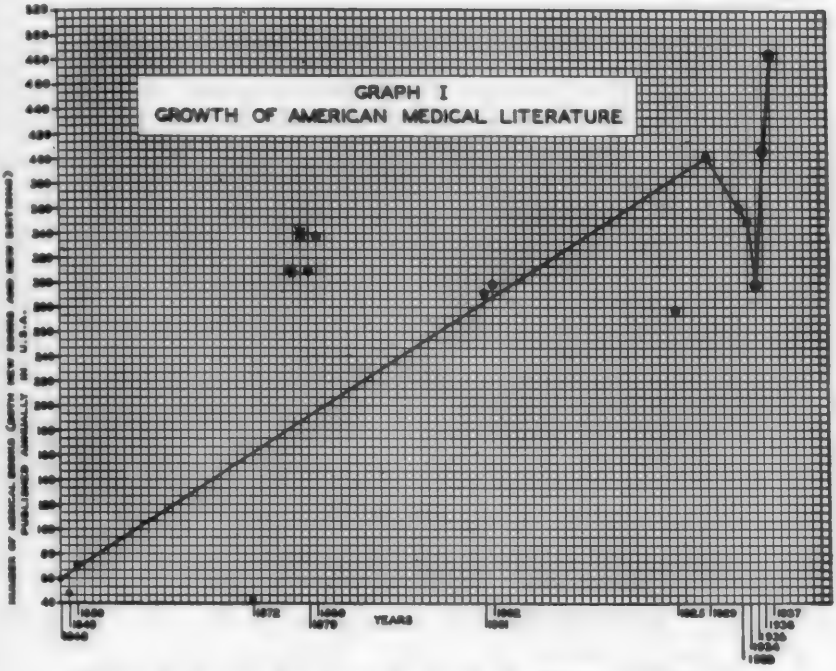
augmented in size and price. Are these increases justified, necessary or desirable, and can practitioners and students afford them? The American Medical Association advises that a small hospital library have a minimum of 29 volumes, which cost $79.25 to 788, while the complete list of 409 books recommended is priced at $3,863.10.[84] Medical students are required to purchase at least 46 books which cost from $106.50 to $143.50, and are encouraged to own 111 additional books which bring the total to $241.60, if the cheapest books in each class are bought, or to $450.50 for the most expensive ones.[85] Is this expenditure necessary? Osler once said that a practitioner's library should consist of a few medical journals and a pair of clipping shears, and "a true worker does not want textbooks; he looks to medical literature and monographs."[1] He recommended "take a good weekly and a good monthly journal to begin with, and read them. Then for a systematic course of study, supplement your college textbooks with the larger systems—Allbutt or Nothnagel—a system of surgery, and, as your practice increases, make a habit of buying a few special monographs every year."[86] Indeed, a general practitioner or pediatrician does not need textbooks of any variety, provided that he will spend at least fifteen minutes daily reading the *Journal of the American Medical Association,* the *American Journal of the Diseases of Children,* and the *Journal of Pediatrics,* or similar journals, depending on his major interest, and will have them bound for reference at a total annual cost of $32.30 ($23.50 for subscriptions and $8.80 for binding).

6. *Conclusions*: a. Too many, too large and too expensive medical books are being published.

b. Medical books should be up-to-date digests and interpretations of information leaving the mass of details to the journals.

c. More authors should finance the cost of their medical books.

d. Cheaper methods of selling medical books are desirable.



* Except for the past forty years, the records of publication probably are not accurate and are responsible for some of the fluctuations. The earlier records often included the reprinting of foreign books. The large numbers reported in 1879 and 1880 probably are due to the inclusion of pamphlets as books. The numbers of the books published each year and the source of the records are: 1848-60[3], 1849-42[4], 1850-71[5], 1872-42[6], 1879*-310[7], 1880*-339[7], 1901-292[8], 1902-299[8], 1925-277[8, 9], 1929-402[8], 1933-360[8], 1934-350[8], 1935-298[8], 1936-406[8], 1937-485[8], 1938-390[8], 1939-431[8], 1940-472[8].

* Includes pamphlets.

TABLE 1. *American Medical Publications from 1800-1848, (including original productions, translations and reprints of books published elsewhere* [10]).

Classification	*Number*
Theory & Practice (Internal Medicine)	104
Surgery	38
Anatomy	31
Physiology	30
Materia Medica	25
Midwifery (Obstetrics)	22
Gastro-enterology	13
Pathology	9
Medical Jurisprudence	9
Dermatology	8
Urology	7
Insanity (psychiatry)	7
Pediatrics	7
Medical Dictionaries	6
Gynecology	5
Blood	4
Ophthalmology	4
Dental Surgery	4
Total	333

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15. Bible: Ecclesiastes, xii, 12.
16. Statistical Abstract of the United States, *18*: 817 and 861, Washington, Government Printing Office, 1935, 1937, 1938.
17. Report of the 7th Census of the United States, 1850, p. 74.

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TEXTS AND DOCUMENTS

THE COLLECTION OF ARABIC MEDICAL LITERATURE IN THE ARMY MEDICAL LIBRARY,

With a Checklist of Arabic Manuscripts *

CLAUDIUS F. MAYER

Bism'illáh ir-raḥmán ir-raḥími wa'l-hamdu lilláhi! In the Name of God, the Merciful, the Compassionate, and Praise be to God!

We begin with the words of the pious Moslem, the words which form the first line of all Arabic manuscripts or printed books, be they copies of the Koran, commentaries on Mohammedan Law, anthologies of unprintable poems of Abú Núwas, or scientific treatises on alchemy, astrology or medicine. We find the "bismilláh" as the headline in each of the sixty-three medical manuscripts which our Library was so fortunate as to acquire from a travelling scholar of the Islam. These pious words introduce the earliest manuscript of our Arabic Collection, a copy of the al-Ḥáwí of Rhazes written in 1094 A. D. as well as the copy of a dissertation on fevers in Morocco written by Muḥammad as-Saláwí in 1813. There is a separation between the two of some 800 years, and yet we find no change in the traditional style of writing! The "bismilláh" is to be seen in the Qánún of Ibn Sína (Avicenna) as well as in the rather salacious work of Aḥmad ibn Yúsuf at-Tifási on the Delight of the Married, for there is no knowledge of which we need be ashamed, and there is no topic of discussion ungracious to Allah!

An almost dogmatic adherence to tradition with an unrepressed freedom of thought, naive piousness with an untamable curiosity

* The first half of this article without the checklist of the manuscripts has been also published in the Bulletin of the Medical Library Association (1941-42, 30: 96-104) as a paper read before the 43rd annual meeting of that association.—Recently, the Army Medical Library purchased another 60 Arabic medical manuscripts, the titles of which will be published in another checklist.

badly veiled by an assumed dignity are the chief characteristics of the Arab world. This is manifested in the daily life of the Moslems, in their religious ceremonies, and in their customs, arts, and sciences. It is a world entirely different from our own with a culture so remote from most of us that for its understanding we must resort to explanations, dictionaries and guide-books. We find a science still mostly hidden behind the queer letters of neatly copied Arabic manuscripts. Until recently, we had only a distorted picture of this through the medieval and 16th century Latin translations of Arabic works.

We all live on traditions. Our whole Western culture and civilization is founded on traditions of the East, traditions of the ancient Greeks and Romans, and of still older cultures. In medicine, as the history of this science shows, we have always returned to the fundamental doctrines of the ancient masters of the healing art, Hippocrates and Galen. We saw a movement back to Hippocrates in each turn of the centuries, usually after each false route trodden in the dark: after each chaotic depression in medical research there came the recurring Hippocratic boom, which again put the healing art upon a solid basis.

The greatest value of Arabic science is that it eagerly embraced the tradition of Greek culture at a time in history when it was exposed to almost complete destruction in the warring Europe of the early Middle Ages. Most of the medical works of ancient authors have been saved for us by the eagerness of the early caliphs of the Saracen empire, the dynasties of the Umayyáds, 'Abbasíds and Fatimíds at Damascus, Bagdad, and Cairo. They spent large sums to buy Greek manuscripts; they invited scientists from Byzantium; they engaged physicians as translators; they established medical schools, hospitals, and dispensaries; they founded scientific academies and encouraged the further development of medicine by scholarships and by large emoluments paid to court physicians. For the Arabs, this early period of their history, from 750 to about 900, was indeed a scientific renaissance in Asia Minor, Egypt and Iraq. As their empire extended towards the West along the Mediterranean through North Africa, the fruits of this renaissance were brought back to Europe, first to Spain and to the new settlement of semi-barbaric people in the North, then to Italy through Sicily and Salerno.

In Spain the center of science was at Córdoba, where at one time the caliph's library was said to consist of more than 200,000 volumes, a truly great library of manuscripts. No wonder that students, including medical students, hastened to this center of culture and science from all over the western world, and that the knowledge of Arabic was as important a part of education as was Latin for us just a few decades ago. Arabic was the universal language of science, and it was much easier to write the almost shorthand confluent Arabic letters than the clumsy Roman script used in writing during the Merovingian and Carolingian periods.

The Arab culture gradually pervaded Europe, and the young western scholars imbued with the doctrines of eminent Saracen scientists carried home not only the knowledge of the Arabs originally borrowed from the Greeks, but also their customs and methods of study. Throughout the Middle Ages, until the occupation of Byzantium by the Turks, Arab science and Arab medicine were taught at the universities and medical schools of Europe in the peculiar Arab method of instruction known as scholasticism.

It is mentioned in condemnation that the science of the Arabs was sterile, that it did not bring new fruit, that it was rather a sort of icing for the preservation of the ancient fruits of Greek science. This shows a prejudiced attitude and is not a fair statement. It is the attitude of those to whom the linguistic difficulties made the science of the Arabs a closed and mysterious book.

There were many geniuses produced on Saracen soil, chemists, mathematicians, poets, lawyers, economists, physicians, and historians whose names and achievements are well-known even to the modern man of average reading interest. Of the long list of their great physicians we are familiar with such latinized names as Johannitius from the 9th century of the Christian era, Rhazes, and Haly Abbas in the 10th century, Avicenna in the 11th, Averroes in the 12th, and many others. Because their names have been distorted by the medieval Latin, their doctrines have been distorted likewise and a special study is needed to arrive at the truth, by comparing the original Arabic text with the Latin translations.

Arab medicine, be it said, did not die with the medieval Avicenna or Averroes. Its literary tree continued to produce new branches,

coupling tradition with new thought. In spite of this, from the 16th century on until the middle of the 18th century, European interest in Arab science and medicine gradually faded. This lack of western interest together with the peculiar aversion of the Moslem to making use of the printing press makes the Arab medical literature of the last four centuries almost a *terra incognita* for us.

In the 16th century an attempt was made by Scaliger, the elder, to collect a great number of Arab scientific manuscripts and to print them. But nothing became of his effort. Arabic printing was invented by Pietro Paolo Porro, printer at Genoa, who published David's psalterium in four languages in 1516. A Spanish-Arabic grammar and dictionary printed in 1505 in Salamanca had still to use Roman transliteration of the Arabic words. Though the Arabs themselves had been familiar with the Chinese method of printing long before the so-called " invention " of Gutenberg, it was not until 1729 when the first attempt to print in Arabic was made in a Saracen country at Constantinople. Regular book printing with Arabic characters did not start until 1825, when the first press was set up at Cairo. Possibly the Arabs, with their great esthetic sense, were not to be wondered at when they preferred the beauty of hand-made books with their attractively colored ornaments, close lines and words in evenly curved characters written on artistically prepared glossy paper to the ugliness of staccatoed black print on leaves which soon became foxed and spotted.

Thus, it has happened that the great bulk of Arabic medical works of the past centuries is still manuscript, and since the cost of printing is considerably higher even in modern times, and the typesetting requires highly trained persons, even now it is customary for sultans, sheikhs and wealthy Arabs to engage a scribe for copying manuscript books for their libraries. Some of these volumes are real gems of calligraphy and are worth many times their weight in gold.

Only few of the Arab medical works have been translated into languages we can easily read. The activities of the European translators began very early, probably by the 9th or 10th century. The scheme of the medieval translators included (a) retranslations from the Arabic into Latin of the works of Hippocrates and Galen, (b) translations of commentaries of Arab authors on the ancient Greek

works, and (c) translations of original observations, books and letters of Arab scientists. Many of the early translators are intimate friends of the medical librarian who had an opportunity to handle and catalog incunabula or 16th century books. Constantine, the African, Gerard of Cremona, and many others have left us the translations from the Arabic, but also some of the fundamental chef-d'oeuvres of the stars of Arab medicine. These early translations often were made into Hebrew, and some of the medieval Jewish physicians achieved immortality by such literary work. In 1280 A. D., Charles, King of Sicily, purchased the Arabic manuscript of the al-Ḥáwí of Rhazes from the caliph of Tunis, and employed the Salernitan Jewish physician, Abu'l-Farrağ for its translation; after he had finished the great task, the translation was supervised by the Salernitan medical faculty, and corrected according to their existing practice. Such corrections and over-corrections, however, as well as the mistakes committed in translating from a language which has no vowel signs in ordinary texts and in which many letters can be distinguished from each other only by diacritical points resulted in Latin texts which were full of absurdities in words and in meanings.

After the invention of printing there was a long lull in the translating activities of European scholars, but in the 18th century there developed a new interest for the Orient. It was this century which discovered the manuscript of the famous Arab fairy land, and in 1704 the French Antoine Galland published his translation of the Arabian Nights. It was this century which re-discovered also the Arab medicine. Research and study of this began about 1740 in England, and has been continued until today with more and more interest and intensity.

This study in its many branches, has resulted in the critical edition of Arabic texts, in a few translations of original works, in analytical and synthetic publications on the history and importance of Arab medical life, and in biographies, dictionaries, bibliographical guides of all sorts. Chairs of oriental languages have been created in some of the more prominent European universities, medical students have begun to write dissertations on Arab medicine based upon investigations of the original sources, societies were beginning to unite the scientists interested in Arabic and other oriental studies, and libraries

are now paying special attention to the acquisition of Arabic literature. Some of the most famous of the now existing Arabic collections were to be found in London, Berlin, Paris, Madrid, Gotha, and Leiden. These collections became the centers of investigation into Arabic literature, and Arab medicine.

The wave of the renaissance of Arab science, probably the third or fourth in the history, reached American soil about 40 years ago when wealthy Americans began to buy whole libraries of manuscripts from the Near East where studies in Arabic literature and the purchasing of manuscripts were made easier by the turn of political events during the 19th century. Politics made an end to the independence of many small and large sultanates and caliphates by the system of European protectorate, and opened the door to the public and private libraries of the Moslem countries from Morocco on to as far as British India.

The literature so far written by Moslem physicians and concerned with the medicine of the Saracens is tremendously large, if one can believe the statements of such bibliographies as that of Wüstenfeld or those contained in the History of Arabic Literature by Brockelmann. The latter published his history and bibliography in 1899 in two small volumes, yet so many undescribed Arabic manuscript texts have been discovered since then that he was forced to issue two supplementary volumes in 1937, each of which is almost larger than the two original volumes together. The bibliographies of Arabic literature show that the original texts of Arab medicine are scattered all over the world in public and in private libraries. It is needless to say that they should be gathered together by whatever means is possible, that is, by reproductions or collecting the original manuscripts and printed volumes.

That is what we are now doing in the Army Medical Library. The foundation of our collection includes (1) material which has been previously acquired for the Library by chance rather than by conscious undertaking, and (2) the original Arabic manuscripts recently purchased. The objects in our collection at present are printed books, manuscripts, journal articles, or whole volumes of Arabic journals, photostatic and microfilm reproductions, and portraits. Its subject embraces the entire development of medicine in

the countries where the Arabic language is or has been spoken from the beginning of the Islam in the 7th century of the Christian era until today. The modern phase of this development is represented chiefly by publications of Egyptian physicians, and studies of European scholars.

The exact size of the collection, part of which is still scattered on the Library shelves, is as yet unknown, but judging from the number of books and pamphlets we were able to dig up so far from various places in the Library, the total number of items available for the study of Arab medicine must be well over 500. The assembling of these publications is often coupled with recataloging, the making of new cross references, and analytical cards, which all require a special working knowledge of Arabic. Moreover, the recently purchased manuscripts have to be also catalogued according to the well established style.

The special method of investigation needed in such bibliographical work, the particular linguistic requirements, and the well-defined field of study fully justify the separate arrangement of Arabic medical literature in the Army Medical Library, and such a collection is a truly special collection, conforming to the principles laid down by our President in his annual address.

There may be larger collections of Arabic books and manuscripts in the world, even in the United States, where the Garrett Collection at Princeton University includes about 4,500 titles. In counting the medical manuscripts of that collection, I could not find more than 43 medical authors represented in 58 copies. In the manuscript part of our collection there are 69 Arab authors in 63 volumes. There is no need for such a comparison, however, because we intend to have photostatic copies made of all the medical manuscripts of the Garrett Collection, and I have no doubt this will be possible. Outside the United States, it has been reliably asserted that only the Prussian State Library in Berlin and the British Museum may be in possession of a larger number of Arabic medical manuscripts. Neither of these ever has made a special effort at collecting just for the study of the medicine of the Arabs. Thus I leave the question open as to whether our Arabic collection is unique.

Some of the more prominent items among our Arabic manuscripts

are the al-Ḥáwí of Rhazes copied in 1094 A. D., which comes from a library near Nedjf in Iraq, where it was in the possession of an old family for the last six centuries. It corresponds to the 5th and 6th books of the Latin translation of this work published under the title " Continens " in 1486 at Brescia, and deals with the diseases of the stomach, esophagus, and intestines. It is well preserved considering not only its age, but also the fact that it is written on paper, the manufacture of which the Arabs learned from the Chinese in the 8th Century.

Another rarity that we have is a complete and perfect copy of Ibn Sína's Qánún copied in the 14th century. Interesting in its strange illustrations is a 15th century anatomy copied by Ḥasan ibn Aḥmad al-Asfahání for the sultan Amir Sadi Pir. Muḥammad Bahádur. There is, too, a unique copy of a treatise on eye diseases composed by Ibráhím ibn Abí Tálib al-Ḥanáfí, but usually attributed to Ibn Sína. Also a unique copy is a work on dietetics written by Ibn al-Miṭran, the court physician of the famous sultan Saladin.

These manuscripts have been collected from all parts of the Orient, from old patrician families at Cairo, Damascus, Aleppo, Bagdad, from private mosques in the cities of Egypt, Palestine, Syria, Mesopotamia, Turkey, Persia, India, Yemen, Iraq. Some of them had been kept in cellars or in hidden places in remote villages off the beaten track and not easily accessible even for the flying horse of the Arabian Nights. Some of them belonged to al-Zahawí, the most famous Arab poet and philosopher of our time at Bagdad.

How many strange stories they could tell us: Stories about emirs and sultans, their luxurious life, their debauchery, the mysteries of the palaces and oriental gardens, plots and revolutions, eunuchs and beauties of the harems, physicians and their fantastic cures, dark laboratories with alembics and furnaces of alchemists, and a thousand and one other tales. They are indeed, so many jinnees ready to take anyone on a magic carpet for a travel back in history and to the Orient, jinnees imprisoned in manuscripts and thrown into the bottom of an ocean of books and awaiting their liberator.

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The following is a checklist of authors and titles of all the oriental manuscripts purchased by the library in the 1940/41 fiscal year. The

authors are to be found under their "nisba" as often as such an entry was possible. This practice made cross references necessary. The transliteration of Arabic letters is slightly different from the commonly used method. The dates of copying are sometimes given in both the Moslem and the Christian manner. A catalogue raisonnée of the manuscripts is now in preparation.

Akfání. See Singári.

'Alí ibn 'Abbás. See Magúsí.

(Anonymous). Kitáb taśríḥ ul-badani (Anatomy of the body) MS. 829 A. H./1488 A. D.

With illustrations resembling those in the Manchu anatomy; copied by Ḥasan ibn Aḥmad ul-Asfahání for Muḥammad Bahádur.

(Anonymous). Śifa ul-asqám wa-ḥayát ul-agsam (Cure of the diseases and life of the bodies) MS. XVIII. ct.

See in Ibn Ġazla: Kitáb al-bayán.

Anṭáki aḍ-Ḍarír, Dá'úd ibn 'Umar, -1599. Kitáb ṭibb (Medicine) MS. 957 A. H./1550 A. D.

This is the Taḏkirat uli'l-albáb; copied in the author's lifetime by Aḥmad ibn Ismá'il al-Ġazzí. The Arabic text of this work is also available in print (2 vol. Búláq, 1886).

———. Nuzhat ul-aḏháni fí iṣláḥ ul-abdáni (Delight of the minds in the improvement of the bodies) MS. 1741 A. D.

See in Ġazzár: Zád.

Aqfahsí, Śiháb ad-Dín Aḥmad, fl. XV. ct. Kitáb ádáb ul-akli waś-śurbi (Good manners of eating and drinking) MS. 833 A. H./1431 A. D.

Arzání, Muḥtár Ḥakím Śáhí, fl. 1760. Mufriḥ ul-qúlúb / Śarḥ fí qánúngi / (Happiness of the hearts; commentary on the Qánún) MS. holograph (?) 1178 A. H./1764 A. D.

Supercommentary on the commentary of Ġagmíní on the Qánún of Ibn Sína.

Astarábádí, Ḥusain ibn Muḥammad, fl. 1427. Śarḥ ul-qánúngi (Commentary on the Qánún) MS. XVII. ct.

Supercommentary on the commentary of Ġagmíní.

Bagdádí, Músá ibn Ibráhím, -1463. Al-ġauhar un-nafsi (The substance of the soul) MS. 1040 A. H./1630 A. D.

Poem on the relation of the mind and the body.

Bahraq, Muḥammad ibn 'Umar, -1524. (Didactic poem on the art of medicine MS. XVII. ct.

See in Ibn Ġazla: Kitáb al-bayán.

Damanhúrí, Aḥmad, -1747. Al-qaul uṣ-ṣaríḥu fí 'ilm it-taśríḥi (Clear talk on the science of anatomy) MS. 1154 A. H./1741 A. D.

Copy authorized by the author; probably unique.

Damírí aś-Śáfi'i, Kamál ad-Dín Muḥammad ibn Músá, 1344-1405. Kitáb ḥayát ul-ḥayawáni (Life of the animals) MS. 900 A. H./1495 A. D.

First half of a zoological dictionary with reference to the medical use of animals; includes only the letters from alif to ḍad of the longer recension of the work.

Dimiśqí, Muwaffaqaddín Abú Naṣr As'ad ibn Abú'l-fatḥ Ilyás ibn Ġirġís ibn ul-Miṭrán. -1191. Bustán ul-aṭibbá warauḍat ul-alubbá (The garden of physicians and the park of the minds) MS. 837 A. H./1433 A. D.

Faraġ, Dá'úd ibn Abí. Aṭ-ṭibb un-nabawí (The prophetic medicine) MS. 868 A. H./1463

The medicine in the Qur'án.

Ġagmíní. For supercommentaries on his commentary of the Qánún see Arzání; Astarábádí.

Galenos. For translation of his anatomy see 'Ibádí; see also 'Iláqsí; Muṣṭafa Bahġat.

———. Al-manáfi' ul-bayyina (The uses of the witness) MS. 1196 A. H./1781 A. D.

Probably unique; on general hygiene, and the use of the parts of the body; apparently identical with the Manáfi' al-a'ḍá' mentioned in the Galenus-Bibliography of Bergsträsser (Neue Materialien, etc. Lpz., 1932).

———. Kitáb al-mayámír (The "Meamír") MS. 938 A. H./1532 A. D.

This is the translation of the Περὶ συνθέσεως φαρμάκων τῶν κατὰ τόπους; only the second book is contained in the manuscript.

Ġazzár, Abú Ga'far Aḥmad ibn Ibráhím ibn Abú Ḫálid ibn ul-Ġazzár, -1004. Zád ul-musáfiri (Provisions for the traveller) MS. 1154 A. H./1741 A. D.

The Viaticum. The Arabic text printed also in Dugat, M. G. Études sur le traité de médecine d'Abu Ġá'far Ahmad: Zád ul-musáfir. Par., 1853.

Ġurġáni, Zain ad-Dín Abu'l-Faḍá'il Ismá'il ibn ul-Ḥusain, -1136. Ḏaḫirat Ḫwárizmaśáhí (Treasure of Ḫwárizmaśáh) MS. 1089 A. H./1678 A. D.

———. Ġawáhir ul-maqál (Gems of sayings) MS. 1211 A. H./1796 A. D.

Unique; Persian poem on Ġurġáni's Ḏaḫírat.

Ḥakím Muḥammad Salím Śarif Kahan. 'Iláġ ul-amráḍ (Treatment of diseases) MS. holograph 1216 A. H./1801.

Dedicated to Riḍá Khán Bahadúr; supercommentary on the commentary of Ibn un-Nafís al Quraśí on the Qánún of Ibn Sína.

Ḥanafí, Ibráhím ibn Abí Ṭálib. Kitáb al-istihṣát fí 'iláġ ul-'aini lil-'abṣár (The preparation in the treatment of the eyes for vision) MS. 1110 A. H./1698 A. D.

Unique.

Ḥarawí, Muḥammad ibn Yúsuf al-Labíb, fl. 1518. Baḥr ul-ǵawáhir (The sea of gems) MS. XVI. ct.

Medical dictionary written for the Wazír Ḍahíraddín Muḥammad Amír Beg; also printed: Calcutta, 1830.

Ḥaymí, Ḥiḍr ibn 'Isá, fl. XVII ct. Al-munṭaqa min al-kitáb il-ǵámi' li-quwat il-adwíya (Treatise from the Book of addition to the strength of medicaments) MS. holograph XVII. ct.

Ḥurasání, 'Alí Ṭabís, fl. 1532. Muqaddamat dastúr ul-'iláǵi (Introduction to the rules of treatment) MS. 1232 A. H./1816 A. D.

Composed for the sultan Abú Sa'íd Bahádur Khán.

'Ibádi, Isḥáq ibn Ḥunain, -910. Risálat uś-śáfiya fí adwíyat in-nisyán (Efficacious message on remedies of forgetfulness) MS. 913 A. H./1505 A. D.

See in Ibn ut-Tilmíd.

'Ibádi, Ḥunain ibn Isḥáq, -873. Taśríḥ ul-badani (Anatomy of the body) MS. ca 1700.

See in *'Umarí*. This is the Arabic translation of Galen's anatomy. It has been also translated into German; see Simon, M. Sieben Bücher Anatomie des Galen. 2v. Lpz., 1906 (contains also a glossary). The anatomy of the eye has been published and translated also by Meyerhof, M. in Arch. Gesch. Med., 1910, *4*: 163-90.

See also Bergsträsser, G. Ḥunain ibn Isḥáq. Lpz., 1925 (Contains the Arabic text and translation into German of Ḥunain's Galen bibliography; a supplement to this work under the title Neue Materialien zu Ḥunain ibn Isḥáq's Galenbibliographie has been published by the same author, Lpz., 1932).

———. Risálat un-nikáḥ (Message on the coitus) MS. ca. 1700.

See in 'Umarí; incomplete and anonymous work; probably by this author.

Ibn ul-Baiṭár. See Málaqí.

Ibn Buṭlán, Abu'l-Ḥasan al-Muḫtár ibn ul-Ḥasan ibn 'Abdún ibn Sa'Dún, -1068. Maqálat fí tadbir ul-amráḍ (Treatise on management of diseases) MS. ca. 1630.

The author is the "Elluchasem Elimitar" of the Middle Ages. This is his second important work dealing with domestic remedies, especially for monks.

Ibn Ǵazla, Śarabaddín Abú 'Alí Yaḥyá ibn 'Isá, -1100. Minháǵ ul-bayáni (Open road of the explanation) MS. ca. 1750.

See also Quellen Gesch. Nat. Med., 1932, *7*:

———. Kitáb al-bayán (Explanation) MS. XVII. ct.

Abridged version of the previous work.

Ibn ul-Ǵazzár. See Ǵazzár.

Ibn Ḥamza, Muḥammad. (Pharmacology of Syria) MS. XVIII. ct.

See in Ibn Kitábí.

Ibn Ḥunain. See ʿIbádí.

Ibn Isḥáq. See ʿIbádí.

Ibn ʿIwáḍ. See Kirmání.

Ibn Kitábí, Abú ʿAbdulláh Muḥammad ibn Ḥasan. Al wiqáyat min il-amráḍ il-ḥaṭirati (Protection from important diseases) MS. XVII. ct.

Ibn ul-Miṭrán. See Dimiśqí.

Ibn un-Nafís: See Quraśí.

Ibn Ruśd, Abu'l-Walíd Muḥammad ibn Aḥmad ibn Muḥammad, 1126-1225. Sarḥ ul-alfíyati (Commentary on the poem of a 1000 distiches) MS. 1005 A. H./1596 A. D.

Commentary on the poem of Ibn Sína; several Latin translations of this commentary have been published in the 16. century (e. g. Venezia, 1574).

Ibn Salám, Ṣálih ibn Naṣr Alláh, -1687. Kitáb uṭ-ṭibb ul-ǵidíd ul-kimáyí (Book of the modern chemical medicine) MS. ca. 1090 A. H./ 1679 A. D.

On Paracelsic medicine.

———. Gáyat ul-itqán fi'ṭ-ṭibbi (The extreme perfection in medicine MS. 1162 A. H./1751 A. D.

With reference to Paracelsus and the "European" or French disease; arranged by the author's son, Qáḍí Yaḥyá.

Ibn Sína al-Qánúní, Abú ʿAlí al-Ḥusain ibn ʿAlí, 980-1037. Al-qánún fi'ṭ-ṭibb (The rule in medicine) MS. XIV. ct.

All five books; for commentaries see Arzání; Astarábádí; Ḥakím Muḥammad; Ibn Ruśd; Kázarúní; Mulláh Ḥakím ʿAlí; the Qánún was also printed in Búláq, 1877, in three volumes. Its anatomical part was also edited in original text by P. Koning (Trois traités d'anatomie Arabes, Leiden, 1903). A Hebrew translation by J. Lorki was published in 5 parts 3 volumes, at Napoli, 1491. The Latin translation of Gerard of Cremona was published repeatedly (e. g. Padova, 1479).

———. Kitáb al-qúlanǵ (Book on the colics) MS. XVII. ct.

Ibn ut-Tilmíd ibn Saláma, Amín ad-Dawla ad-Dín Abu'l-Ḥusain Hibatalláh ibn Ṣaʿíd, -1165. Al-aqrábáḍín (Antidotary) MS. 902 A. H./ 1496 A. D.

Ibn Túmart. See Magribí.

ʿIláqí, Muḥammad ibn ʿAlí Yúsuf, 1141. Al-asbáb (The causes) MS. 1087 A. H./1679 A. D.

See in Samarqandí; unidentified work; probably a commentary on Samarqandí's work.

Kamál ad-Dín. See Damírí.

Kázarúni Sadíd ad-Dín, -ca. 1350. Śarḥ ul-múǵizi (Commentary on the abstract) MS. 1130 A. H./1659 A. D.

Fragment only; supercommentary on the abstract of Ibn Sína's Qánún made by Quraśí.

Kazwíní Zakariá ibn Muḥammad, -ca. 1275. 'Agá'ib ul-buldán. MS. XVII ct.

Turkish geographical manuscript.

Kirmání, Burhánaddín Nafís ibn 'Iwáḍ, -1449. Śarḥ ul-múǵizi 'ala al-qánúni (Commentary on the abstract of the qánún) MS. holograph 841 A. H./1437 A. D.

Supercommentary on the abstract of Ibn Sína's Qánún made by Quraší.

———. Śarḥ ul-asbáb wal-'allámáti (Commentary on the causes and the signs) MS. ca. 1700.

Commentary on the work of Samarqandí. Also printed in Calcutta, 1836.

Magribí, Ibráhím ibn Abú Sa'íd ibn Ibráhím al-'Alá'í, fl. 1151. Al-munǵiḥ fi'l-adwíyá il-mufradáti (The success in simple remedies) MS. ca. 1850. Unique?

Magribí al-Andalusí al-Málikí, Abú 'Ali, Muḥammad ibn Muḥammad ibn Túmart, -1001. Kanz ul-'ulúm (Mug of sciences) MS. XVII. ct.

See in Ibn Ġazla: Kitáb al-bayán.

Maǵúší, 'Ali ibn ul-'Abbás, -994. Kitáb kámil aṣ-ṣiná'at ul-ma'ruf bil-maliki (The book of the whole profession of knowledge for the king) MS. 1138 A. H./1715 A. D.

The author was physician of 'Aḍudadawla (949-982) The ǵuz' 1 and 2 of the 2. Maqálat has been also edited by Koning in his Trois traités d'anatomie Arabes (Leiden, 1903). The latin translation is known as the Liber regius (Venezia, 1492).

German translation of chapters 8-12 of Book 8 see in Richter, P. Über die Dermatologie des 'Ali ibn al-'Abbas in Arch. Derm. Syph., Berl., 1912, 113: 849-64; 1913-14, 118: 199 etc. Latin text of his anatomy of the brain by Wiberg, J. (in Janus, 1914, 19: 17-32; 84-104). For a German translation of his ophthalmology see Xenophon, G. Die Augenheilkunde des Ali Abbas, Berl., 1900.

Málaqí, Abú 'Alí Muḥammad ibn Aḥmad Diyá'addín ibn ul-Baiṭár, -1248.

For an extract of his work see Ḥaymí.

Ma'rúf, Muḥammad ibn Manla, -1505. Turǵumán al-aṭibbá' (Medical interpreter) MS. 1235 A. H./1819 A. D.

The earliest known copy of this pharmaco-botanical work.

Maulawi Mihr 'Alí. (Treatise on fevers.)

See in Mirza 'Alí.

Mirza 'Alí, fl. XVII. ct. Asrár ul-'iláǵi (Secrets of treatment) MS. 1020 A. H./1659 A. D.

Unique.

Mulláh Ḥakím 'Alí. Śarḥ ul-kulliyáti (Commentary on the Universals) MS. XIX ct.

Commentary on that portion of Ibn Sína's Qánún called Colliget; Unique copy of this Indian commentary.

Muṣṭafa Bahġat, fl. ca. 1187. Kitáb ut-taqásim ul-insániya fi'l-ṣúrat il-baśariyati (Book on the human dissection of the human form) MS. ca. 1540.

Notes on the anatomy of Galen.

Nidá'i, Ḥakím, -1574. Manáfi' an-nási (Advantages for mankind) MS. 1051 A. H./1643 A. D.

On dietetics and hygiene.

Núriḥaśtí, Baha ad-Dawla ibn Śáḥ Qásim, fl. ca. 1500. Ḫulášat ut-taġárib (Summary of experience) MS. 1248 A. H./1832 A. D.

Qawṣúní Badraddín Nidá'i, Muḥammad ibn Muḥammad, fl. 1560. Zád ul-masífi 'iláġ il-bawásíri (Provision for the journey in the cure of hemorrhoids) MS. 1741 A. D.

See in Ġazzár: Zád.

Qaysí, Fatḥ ad-Dín Aḥmad ibn 'Uṯmán, fl. ca. 1200. Natíġat ul-fikar fí 'iláġ amráḍ il-baśar (Summary of recollection in treatment of diseases of man) MS. 707 A. H./1308 A. D.

Quráší, 'Alá' ad-Dín Abu'l-Ḥasan 'Alí ibn Abu'l-Haram ibn un-Nafís, -1288. Śarḥ taśríḥ il-qánúni (Commentary on the anatomy of the Qánún) MS. 905 A. H./1500 A. D.

Commentary on the first five ġumla of the 1. fann of the 1. kitáb of Ibn Sína's Qánún. For supercommentaries see Ḥakím Muḥammad; Kázarúní; also Tabrízí (Muḥammad).

Selected Arabic texts from the commentary have been edited by Meyerhof in Quellen Stud. Gesch. Naturwiss., 1933, 4: 37-88, which also includes the life and the bibliography of Quraší.

Raśíd Waṭwáṭ. See 'Umarí.

Rází, Abú Bakr Muḥammad ibn Zakaríya, 865-932 (?). Kitáb al-ḥáwí (The comprehensor) MS. 489 A. H./1094 A. D.

The oldest piece of this collection; includes the parts corresponding to the 5. and 6. books of the Latin translation known as Continens; describes the gastrointestinal diseases, and their treatment.

———. Al-Manṣúrí fi'ṭ-ṭibbi (The "Almansor" on medicine) MS. 1078 A. H./1667 A. D.

The Arabic text of Book 1 of the Almansor has been edited by Koning in his Trois traités d'anatomie Arabes (Leiden, 1903). The full text with Latin translation has been also published by Reiske (Halle, 1776). Latin editions have been numerous in the 16. century.

Śábúrí, Búlus ibn Quṣṭantin al-Málaki, fl. ca. 1700. Natíġat ul-matlúbáti fí ma'rifat il-hummayáti (Summary of objects in the science of fevers) MS. ca. 1725.

Unique.

Śahrazúrí, Muḥammad ibn Muḥammad, 1155-1205. Taríhí hukamá (History of scientists) MS. ca. 1680.

Persian translation made by Maqṣúd 'Alí at-Tabrízí.

Saláwí Aḥmad ibn Muḥammad, fl. 1813. Kitáb ṭibb (Medicine) MS. holograph 1813 A. D.

On diseases in North Africa; unique.

Samarqandí, Abú Ḥámid Muḥammad ibn 'Umar Naǵib ad-Dín, -1222. Maǵmú'at ul-agdíya (Collection on foods) MS. 1912 A. H./1603 A. D.

Contains: (1) Al-agḏíya wal-aśriba; (2) Al-qarábáḍin 'ala tartib il-'ilál; (3) agḏíyat ul marḍá.

———. Kitáb al-asbáb wal-'allámát (The causes and the signs) MS. 1087 A. H./1679 A. D.

With many marginal notes and insertions; for commentary see Kirmání.

Śanzárí, Abú'l-Faraǵ 'Abd ur-Raḥmán ibn Naṣr Alláh ibn 'Abdulláh, fl. ca. 1170. Kitáb al-iḍáḥ fí asrár 'ilm in-nikáḥi (Illumination in the secrets of the coitus) MS. 1196 A. H./1781 A. D.

The author's name may be Śaizárí, or Sanǵarí, or Siǵazí; see in Ta'ǵarútí.

Sarwáni, Muṣṭafa, fl. 1750. Al-mufradát ul mu'arrabat (The Arabic particulars) MS. holograph 1166 A. H./1753 A. D.

Arabic translation of the Tuḥfat ul-mú'minín of Śaḥ Muḥammad at-Tanákáhúní; a pharmacological work.

Siǵazí (or Siǵzí), Mas'úd ibn Muḥammad, fl. ca. 1334. Ḥaqá'iq asrár iṭ-ṭibbi (Truth of secrets in medicine) MS. XVII. ct.

Sinǵárí al-Miṣrí ibn ul-Akfáni, Abú 'Alí Śams ad-Dín Muḥammad ibn Burhán ad-Dín Ibráhím ibn Ṣá'id, -1348. Kitáb gáyat ul-umniyát fí ma'rifat il-hummayyáti (The desired perfection in the knowledge of fevers) MS. XVIII. ct.

Śirázi, Muḥammad ibn Numiya Ṭálib ibn 'Abdulláh ibn Ni'Matalláh ibn Bahá Und-Dín. Kitáb al-fawáyid ul-ḥasaníyati fi'l-muǵarrabát iṭ-ṭibbíyati (The benefits of good work in medical experience) MS. 1163 A. H./1752 A. D.

Composed for the King Ḥasan ibn Abí Numa ibn Barakát.

Śirází, Naǵm ad-Dín Maḥmud ibn Ṣá'in ad-Dín Ilyás, -1467. Al-ḥáwí fí 'ilm it-tadáwí (The comprehensor in the science of medical treatment) MS. ca. 1550 A. D.

Suwaidí, 'Izzaddín Abú Isḥáq Ibráhím ibn Muḥammad ibn Ṭarḫán ibnu, -1292. Muḫtaṣar taḏkirati (Abridgment of the note) MS. 1038 A. H./1628 A. D.

The abridgment of the Taḏkirat was prepared in 1546; it is probably the version made by Śa'ráni.

Suyúṭí, Abu'l-Faḍl 'Abḍurraḥmán ibn Abú Bakr Ǵalál ad-Dín, 1445-1505. Kitáb al-minhaǵ us-sawí wal-manhal ur-rawí fi'ṭ-ṭibb in-nabáwí (Open road of equality and source of information on the prophetic medicine) MS. XVII ct.

Tabrizí, Maqṣúd 'Alí. See his translation of the work of Śahrazúrí.

Tabrízí, Muḥammad Rafí ibn ʿAbdulláh, scribe, fl. 1704. Risálat fi't-taśríḥ (Letter on anatomy) MS. 1704 A. D.

With marginal notes taken from the work of Quraśí.

Taʿǧarúti (or Tamgrúti), ʿAbdulláh ibn Muḥammad ibn Masʿúd ad-Darʿi. Ar-rauḍ ul-yání' (The ripe garden) MS. 1196 A. H./1781 A. D.

On sexual hygiene in marriage.

Tanákáhúní, Śaḥ Muḥammad, fl. 1517. Tuḥfat ul-múʿminín (Rarity for the faithful).

For its Arabic translation see under Sarwání.

Tifáśí, Śiháb ad-Dín Abu'l-ʿAbbás Aḥmad ibn Yúsuf, -1253. Nuzhat ul-albábi (The delight of the hearts) MS. ca. 1500 A. D.

ʿUmarí, Muḥammad ibn ʿAbd ul-Ǧalíl, -1182. Risálat. MS. ca. 1700 A. D.

On dietetics.

Zaín ad-Dín. See Ǧurǧání.

Zarrín Dast, Abú Rúh. Núr ul-ʿuyún (Treatise on the eyes) MS. 1088 A. D.

Photostatic copy of introduction and of Book 7 (Surgery) of MS. No. 1575 of the Bodleian Library; on eye diseases.

Zauzání, Muḥammad ibn ʿAlí, fl. 1249. Ṭabaqat ul-ḥukamá (History of scientists) MS. 1045 A. H./1635 A. D.

DISSERTATIO DE DIÆTA LITTERATORUM

OR

THE REGIMEN OF SCHOLARS[1]

C. GRANT LOOMIS

The little tract of Georg Wolfgang Wedel,[2] Professor of Medicine at Jena, from 1673, seems to be preserved, so far as I can ascertain, only in a rather full synopsis in Tentzel's *Monatliche Unterredungen*.[3] Both its excellence and its naiveté will at once be apparent from the following translation. A reprint of all the details of the original would be desirable, but the essence is no doubt preserved in the review.

We have been examining series of books long enough, said Antonio. Let us take up now something merry and at the same time useful. An impetus to this end is given to us by Mr. Wedel of Jena's *de Diæta litteratorum*, recently issued for the third time. He has made some nice paradoxes which move me mightily to call your collected attention to them. In his preface he makes report of Paracelsus and Helmontius whom he says cared nothing about diet, but were full day and night. On the other hand, Verulemius tells of himself that he was produced by an old and weak father who was enfeebled by much medicine-taking. Consequently he had from the beginning of his life such a weak and badly constituted body, that all doctors agreed that he could not live in the natural course of events beyond his four-

[1] Fit reading for all sedentary existences.

[2] Wedel was born Nov. 12, 1645 at Golssen in the Lausitz and died Sept. 6, 1721. He seems to have been a prolific issuer of tracts. A list made from the notices in the *Unterredungen* during the decade of 1689-1698 represents a partial survey of his interests: *Coenarum helena seu Anguilla*, I, 1012; *Exercitationum medico-philogicarum*, II, 32, IV, 63; *Programmi de nummis caduceatis*, IV, 473; *Tabulæ in universam chymiam*, IV, 476; *Testimonium de rustico mire a cervo, sed curato*, IV, 901; *De medicamentorum compositione extemporanea*, V, 337; *Dissertatio medica de spectris*, V, 724; *Decas septima exercitationum*, VI, 988; and *Prompemticon de Nummis Iani ratatis*, VI, 181. The title represented here appears in volume IV, 698-705.

[3] W. E. Tentzel, *Monatliche Unterredungen einiger guten Freunde von allerhand Büchern und andern annehmlichen Geschichten*, Leipzig, 1689-1698. The complete set of this interesting early review of non-literary books, including twenty-nine which have interest for the medical profession, is scarce. I know of but three copies in this country, viz., those in the university libraries of Harvard, Chicago, and California.

teenth year. Nevertheless, by a regular diet and by an alert abstinence from everything harmful to him, he has lived to the age of sixty and has hope of living much longer.

Definitions and etymologies are evolved in the first part, in which is made special application to those who spend their lives in study, and hence usually in sitting. Therefore their diet should consist in the correct use of *rerum non naturalium*, so far as is applicable to their health. The *res non naturales* are in the main six: (1) air; (2) food and drink, as well as the abstinence from such; (3) sleeping and waking; (4) exercise and rest; (5) excreta and retenta; and (6) intellectual activity and the emotions. First of all, each one is instructed to examine his own nature in respect to all these things, and to pay strict attention to that which he finds beneficial or harmful. For example, a doctor cannot determine precisely whether warm or cold air is suitable to those intellectually engaged. It is, to be sure, not healthy at any time to go quickly from heat into cold, or from the cold into hot rooms. The power of forming judgments operates better in warm air than in cold; also intellects are animated into the formation of all sorts of ideas much more easily in warm air. On the other hand, the processes of the memory go on better in cool places, and what one memorizes under such conditions remains more constant in the memory than one memorizes in warmer areas. However, it may be that cool air is not unhealthy for those whose natures are hot. To pursue this rule in general, we might say that temperate air is suited best of all to the man of even temperature; cool air to hot-bodied people; warm air to those of cold natures; dry air to those who have clammy beings; and moist air to those of a dry make-up. Moreover, in spring, when the trees are putting forth their leaves, one ought to go walking, particularly in those places where the linden trees are most dense. The east wind is for the intellectually inclined very healthy and pleasant, therefore, the scholar's study should be chosen with an eastern exposure, and the windows should be opened occasionally to let in the fresh air. The north wind is of only slightly less importance, and excels all other winds in disseminating poisonous vapors, so that one will seldom hear of the plague outlasting the winter. The west wind has tertiary importance and is more beneficial to plant-growth than to animals. The south wind blows over the ocean and great swamps and brings much decay with it, making dark circles under the eyes, causing head-aches, etc. Whoever wishes to remain well must make the air which is contrary to him good and pleasant by fumigation; nevertheless, he must stay outside sufficiently long until the greatest smoke is dispelled. Those who study nights may wish to have the lamp-smoke conducted out of the room by means of a vent.

So far as eating and drinking are concerned, not everything is to be considered from the point of view of weight and mass, but only so much is to be consumed that a restoration of the physical forces may take place, and not a retarding of those forces. One should eat more in winter than in sum-

mer. Those who take some exercise, fencing, riding, dancing, etc., ought to eat more than those who pore over books. Furthermore, those who eat too little and never take any pleasure, do themselves great harm. Excess of drinking is better corrected by fasting than by purging or violent exercise. Among foods, those are best which are most digestible, and which have some moisture. One should be particularly on his guard against taking at one time foods which do not agree with one another, such as cheese and milk preparations with sour foods, sour wine or beer, if he wants to live free from gout, the stone, scurvy, and such similar difficult guests. Whoever is accustomed to eat twice a day should stick to that routine, unless he wishes to subject his fundamental constitution to alteration. Thin people may eat rather often, but never much at a time. On the contrary, the fellow who stuffs his paunch all the time in order that he may appear pretty (sic!), can easily eat himself into a state of phthisis. Soft foods should be eaten first; harder ones afterwards.[4]

Strong drinks, Spanish and Neapolitan wines and such like should be weakened with water or the juice of lemons, limes, or oranges. Finally the student must be mindful in his regimen that his cook (female here) be not filthy, stinking, and sluttish, but nice, charming, and clean. For it is a bad state of affairs when the cook during the preparation of the meal stops to hunt fleas, and the poor creatures take their refuge in the soup and are served up.

In the third section, the man of learning is warned against too much sleeping or waking. He is urged to continue his sleep until his bodily adjustment is completed and his strength is regained, a matter which doesn't take place precisely in seven, eight, or nine hours. Sleep at night is the best and healthiest. If one does have to sit up nights, then he must sleep all the longer in the mornings, not in the afternoons, although naps may benefit those with weak stomachs or constitutions, or whose natures are too dry or too filled with salty moisture. Primarily scholars should refrain from night study for the sake of avoiding the ills and diseases which arise so often from this source. Nevertheless, one shouldn't retire immediately after the evening-meal, but wait at least an hour. One shouldn't begin immediately by lying on his back, but should begin on the right side and do most of his sleeping on the left side. If sleep will not come, a prescribed sleeping-potion (*Schlaff-Milch*) or foot-bath is to be made use of.

So far as exercise is concerned, one should be more active in winter, spring, and fall than in the summer, since then a violent motion is very harmful. Exercise is best before eating, therefore the student is recommended to

[4] The following statement appears next: Es müste denn einer die schnelle Cathrine haben, so möchte ers umkehren. I venture to translate: If a fellow is troubled with diarrhea, then he might find it better to reverse the order (i. e. of the foods).

enjoy dancing, fencing, and other activities before meal-time. Those whose natures are moist should exercise in places with an eastern exposure. Those, however, with hot natures should take their sport in the shade and under good-smelling trees where the exposure is north. Those who have a good purse and are able to eat well, may exercise before meals until the perspiration breaks out, but in the tennis-courts (which were indoors) where the bad air cannot penetrate. Those, however, who have to get along with bad entertainment, may very well be laughed at, that they undertake such exercise with the pretext of arousing their appetites. For appetite in them is strong enough without that, and could be awakened more by a short walk—if they could only quiet their appetite.

So far as the emotions are concerned, learned men could love, be angry, and express happiness from time to time with good profit to their health, particularly those who are phlegmatic and constipative. They could avail themselves of pleasing music with considerable success. So far as the recrementis (by-products of the body) are concerned, the gentlemen may care to read that section for themselves. There are rather ticklish subjects treated here, which cannot very well be given in German, particularly concerning sacrifices to Venus and such other natural business, concerning which I am always forced to blush.

From the fifth and last section, I note only that scholars should be careful in the use of baths. They should not wear tight clothes, and should see that their garments are sweet-smelling, etc.

The ten paradoxes which Mr. Wedel has added in place of his interpretations which are customary in the rebuttal of counter-arguments, we all must really observe.

The first is: *Quo magis urgentur studia, eo minus proficiunt.* Whoever studies day and night loses at length his powers and must stop. The second: *Qui bene dormit, bene studet.* For whoever always sits up nights and doesn't grant his body its proper sleep will soon learn, that his vital forces are weakened. The third: *Plenus venter studet libenter.* For those people are badly mistaken who do not eat their fill, or who eat only once a day in order to have a quiet night. The fourth: *Otia non dant vitia.* It certainly is not right, that one should be constantly over his books, and should grant his body no pleasure. Contrarily, those who take some honest recreation, and go walking from time to time, to observe the creations of God and nature, have better meditations etc. The fifth: *Pluribus intentus minor haud ad singula sensus.* For polymathia is necessary and useful, so that one may go from one study to the other with all the more alacrity. The sixth: *Venus non est ingenii memoriæve pestis.* For scholars do wrong that they shy away from it so very much. An honest love has *coeteris paribus* a power of awakening the intellect, and the body has something, besides, that it can contribute to this. The seventh: *Nec vita sedentaria, nec stataria favet studiis ac sanitati.* For whoever, like the lame cobbler, sits always over books and doesn't bestir

himself, invites constipation and all ills upon himself. For such a thing is not to be avoided by standing, for that only makes the body all too tired and doesn't alleviate the damage caused by sitting. The eight: *Nulla diæta optima est diæta.* For, whoever has a healthy body, must not of necessity always live a perfectly regular life in respect to eating and drinking. Of course, he must not go on a bender (*debauchiren*) too often, but carefully avoid what he knows to be harmful to himself. The ninth: *Optimum medicamentum medicamento non uti.* It is not a good thing to purge a healthy body or to burden it by a regular taking of medicine, against which not only the stomach but the whole body rebels. One should not give a healthy person much medicine, and even hypochrondriacs should not be dosed in all instances. If one needs medicine, one should use it at certain times of year—otherwise, refrain from its use. The tenth: *Affectus hypochondriacus non est morbus litteratorum.* When scholars become pale, sickly, and hypochondriacal, the fault is not to be attributed to their studies but to their immoderate studying. It is better to be moderate and acquire gradually, than to spoil everything with immoderate studying.

JOHN FERRIAR'S "ADVICE TO THE POOR"

GEORGE ROSEN, M. D.

The Eighteenth Century developed a powerful health movement. However, as Sigerist has recently pointed out, it was relatively short-lived and broke down for various reasons.[1] An important factor in the failure of this movement was that "the apostles of health . . . were humanitarians and idealists, who assumed that education was all-powerful and thus neglected economic factors. . . . They addressed themselves primarily to the middle class, not to the peasants and city workers, most of whom could not read anyway."[2]

In general, the health movement of the Eighteenth Century lost its momentum before the effect of the Industrial Revolution became manifest, so that on the whole these two trends did not intersect. There was, however, at least one case which provides an exception to this general pattern of development. This was Manchester where the impact of industrialization in the textile industry created the first industrial city. The progressive development of industry with its corollary, the need for the presence of an adequate labor supply, led to an influx of landless rural laborers and distressed artisans, producing a characteristic feature of urban industrial centers, namely, congestion of massed population.

It was not long before the congestion of population in Manchester brought to the fore new health problems of vital interest to the community as a whole. By the end of the Eighteenth Century poverty and disease had become acute among the factory workers of Manchester, the chief mill and factory city of England. Public attention was first attracted to the factories, the congested dwellings of the workers, and the health problems connected with them in 1790 by an epidemic of typhus fever. However, it was not until the spread of typhus during the winter of 1795-96 had alarmed and terrified the inhabitants that a voluntary Board of Health was formed.

The purpose of the Board was to stem the virulent fever epidemics. Among its other multifarious activities the Board undertook to recommend preventive measures to be taken by the inhabitants of the city. For this purpose a circular entitled *Advice to the Poor* was

[1] Sigerist, H. E., *Medicine and Human Welfare*, 1941, pp. 78-89.
[2] Sigerist, *op. cit.*, p. 88.

drawn up by John Ferriar to be distributed among the laboring classes. Circumstances prevented the execution of this intention, and the circular was later published in Ferriar's *Medical Histories and Reflections*.[3] The purpose and fate of this circular are described by Ferriar as follows: " In the paper subjoined, No. 1," he writes, " are contained some rules for the preservation of the poor from contagious fevers, which were originally drawn up, for the purpose of being distributed by the Board of Health. Circumstances, which it would be uninteresting to mention, prevented its publication through that channel, and I insert it in this place, because it contains observations which may be found useful in other manufacturing towns. I have accommodated the language, to the persons for whose benefit it was designed." [4]

This circular (see below) represents an attempt to cope with the new situation created by industrialization; but it is an attempt which is still couched in terms of the humanitarianism of the Eighteenth Century, with its tendency to neglect underlying economic factors. Ferriar, for instance, tells the poor " to avoid living in damp cellars," overlooking the fact that most of them could hardly afford anything better. It is evident, then, that Ferriar's *Advice to the Poor* is in a sense a unique document reflecting as it does the early impact of the Industrial Revolution on the Eighteenth Century health movement in England. Noteworthy is the circumstance that Edwin Chadwick in 1842 appended a part of Ferriar's *Advice to the Poor* to his *Report on the Sanitary Conditions of the Labouring Population of Great Britain*.[5] It is also worth mentioning that conditions in Manchester had not improved; if anything they had grown worse. The testimony of Dr. Baron Howard on conditions in Manchester, as given in Chadwick's *Report* reads like an echo of the squalor and misery depicted by Ferriar.[6] It is for the reasons described above that Ferriar's *Advice* is presented here as a document hitherto largely unnoticed in the history of public health.

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[3] Ferriar, John, *Medical Histories and Reflections*, Philadelphia, 1816, pp. 403-406.
[4] Ferriar, *Medical Histories* (edition in 4 vols.), 3, 1798, p. 210.
[5] Chadwick, Edwin, *Report on the Sanitary Conditions of the Labouring Population of Great Britain*. London, 1842, pp. 441-442.
[6] Chadwick, *op. cit.*, pp. 358-360.

Advice to the Poor

You are requested to read the following paper with attention, by persons who are endeavouring to relieve you from the misery and fatality of fevers, and other infectious diseases. A great deal has been done by the establishment of the fever-wards, the good effects of which you daily experience; but much depends upon your own conduct, for preventing the first occasions of sickness. We can only stop the progress of diseases after they have once begun, but it is greatly in your power to prevent them from beginning at all, by attending to the simple directions which follow.

Avoid living in damp cellars; they destroy your constitutions, and shorten your lives. No temptation of low rents can counterbalance their ill effects. You are apt to crowd into the cellars of new buildings, supposing them to be clean. This is a fatal mistake. A new house is always damp for two years, and the cellars, which you inhabit under them, are generally as moist as the bottom of a well. In such places, you are liable to bad fevers, which often throw the patient into a decline, and you are apt to get rheumatic complaints, that continue for a long time, and disable you from working.

If you cannot help taking a cellar, be attentive to have all the windows put in good repair, before you venture into it, and, if possible get it whitewashed. If you attempt to live in a cellar with broken windows, cold and fevers will be the certain consequences.

In many parts of the town, you sleep in back-rooms, behind the front-cellar, which are dark, and have no proper circulation of air. It would be much more healthy to sleep to the front. At least when you have large families, which is often the case, you ought to divide them, and not to crowd the whole together in the back-cellar.

Keep your persons and houses as clean as your employments will permit, and do not regret the loss of an hour's wages when your time is occupied in attending to cleanliness. It is better to give up a little time occasionally to keep your houses neat than to see your whole family lying sick, in consequence of working constantly, without cleaning. It would be of great service, if you could contrive to air your beds and bed-clothes out of doors, once or twice a week.

Always wash your children from head to foot with cold water,

before you send them to work in the morning. Take care to keep them dry in their feet, and never allow them to go to work without giving them their breakfast, though you should have nothing to offer them but a crust of bread and a little water. Children who get wet feet when they go out early fasting, seldom escape fevers, or severe colds.

If you know that any of your neighbours are in a starving condition, apply to some opulent persons in the neighbourhood, get them recommended to the overseer, or, if they are sick, to the Infirmary. Want of necessary food produces bad fevers; and many of you may suffer from neglecting poor distressed persons, whom timely relief would have prevented from the disease.

When you know, or have reasons to believe that any of your neighbours are afflicted with fevers, and that they have not taken care to procure the assistance afforded by the Infirmary, you ought, both from a regard to them and to yourselves, to give immediate information to the physicians, or some trustee of the Infirmary, or to Mr. Bellot, Secretary to the Board of Health. The Board allows the sum of two shillings for every well-founded information of this kind.

You ought to be very cautious in purchasing old clothes or second-hand furnitures, as they may be brought from houses infected with fever, and you may introduce the infection with them, into your own dwellings. Every article of this kind ought to be stoved or ventilated, before it is admitted into your houses.

Your sick neighbours, when the fever gets into their houses, may often require assistance from you. It would be cruel to refuse them, yet it is hard that you should be obliged to expose your health, and that of your family. You ought never to visit them from idle curiosity. But when they require your help in making their beds, washing, or turning the sick, you may preserve yourselves from being infected by tying a handkerchief across your face, just below the eyes, to prevent the exhalations from the bodies of the sick from entering your mouth, and nostrils. As soon as you return to your own house, wash your hands and face in cold water, and avoid touching any of your family, for half or three quarters of an hour.

Your health will always be materially injured by the following circumstances; living in small back buildings, adjoining to the open

vaults of privies; living in cellars, where the streets are not properly soughed, or drained; living in narrow by streets, where sheep are slaughtered, and where the blood and garbage are allowed to stagnate and corrupt; and, perhaps, more than all, by living crowded together, in dirty lodging-houses, where you cannot have the common comforts or light and air.

It should be unnecessary to remind you, that much sickness is occasioned among you, by passing your evenings at alehouses, or in strolling about the streets, or in the fields adjoining to the town. Perhaps those who are most apt to expose themselves in this manner, would pay little attention to dissuasive arguments of any kind. However, those who feel an interest in your welfare, cannot omit making the remark.

There is another subject of great importance to you, on which you seem to want information. A great number of children die of the natural small-pox, almost every year. This mortality must be imputed, in a great degree, to your own negligence, for the faculty at the Infirmary offer to inoculate your children, and give public notice of the proper time for making your application twice a year. The next period for inoculation will be in March; the succeeding period in September. The chance of recovery from the small-pox received by inoculation, is so much greater than the chance of recovery from the natural kind, that you ought to consider yourselves as performing a duty to your children, and to the public, in bringing those who have not yet had the small-pox, to be inoculated at the Infirmary.

You ought to be informed that there is scarcely any thing more injurious to the health of children, than allowing them to work at night in the cotton-mills. It may not always be in your power to prevent their being employed in this manner, but you should be made acquainted with the danger to which you expose them. There is no hazard incurred by their working during the day, in clean, well managed cotton mills.

It is also proper to inform you, that you may be infected with fevers by working in the same place with persons who have just recovered from fevers, or by people who come from infected houses, where they are at no pains to keep themselves clean. It is a fact well-known to this Board, that infectious fevers have been conveyed from

Manchester to neighbouring towns, and cotton-mills, by persons going from infected houses. You had better collect something among yourselves to support such persons for a fortnight after their recovery, than expose yourselves to the risk of catching a fever, by their returning too early to work.

People who are discharged from the fever-wards, bring no infection out with them; their clothes being aired and cleaned, during their stay in the house of Recovery.

NOTES AND COMMENTS

MEDICINE AND SOCIAL CRITICISM

A Comment on George Rosen's Article *

MILTON I. ROEMER

In his interesting discourse on "Disease and Social Criticism," Dr. Rosen analyzed three sets of relationships. These were briefly: (1) the transference of medical concepts to social thought, such as in the conception of "social pathology"; (2) the expression of social dissent in terms of morbidity and mortality of the masses; and (3) the role of physician as social critic by virtue of his observations of sickness and suffering and their relation to economic circumstances.

This account is essentially conceptual, involving mainly the modes of thought of the fields of social criticism and of disease. It has failed to consider another relationship—one that is less of the forms and more of the substance of medical and social thought—and one that is of pre-eminent importance in the current scene, namely, *the general influence of social criticism (or social dissent) on the ideology and hence the practises of the medical profession.* This influence has been exerted with more or less intensity throughout history but has been most evident in the nineteenth and twentieth centuries when the medical profession—along with other groups in society—has taken on more organized forms. Of course, social criticism is not the exclusive influence shaping professional ideology. Strict economic and political pressures and the entire trend of social organization are greater forces. But to the extent that any interaction occurs between social thought and medical practise, the relationship stated is of great importance. This note makes no attempt at a definitive statement of the problem; it is offered mainly as a presentation of a thesis—in the spirit of Dr. Rosen's paper and as a supplement to it—warranting corroboration or disproof by further study.

* George Rosen, "Disease and Social Criticism," *Bulletin of the History of Medicine*, June, 1941, pp. 5-15.

Many social forces have generally conspired to give the physician a conservative role in the social setting. The psychology of maintaining a cautious scientific attitude from the lessons of frequent disillusionments, the need for recourse to established authority, the development of vested professional interests in particular ways of doing things all breed conservatism in the medical and eventually in the general thinking of the physician.[1] More important, perhaps, is the general social and family background of the physician who has of necessity come usually from the more prosperous economic classes and—in the modern period at least—the pressures of his own membership in the middle class with its individualist and property-conscious ideology.[2]

Thus, throughout history the conservatism of physicians in medical matters has always had its counterpart in their identity of interests with the conservative elements in *any* social situation. Of course, there have always been lines of conflict *within* the medical profession (as well as between profession and public) mainly on scientific matters or on questions involving economic competition among groups of practitioners.[3] In fact, precisely speaking, it is impossible to speak of "the medical profession," since in nearly every period and time it has been represented by men of different social status, with correspondingly different ideologies. It would be a mistake to generalize about the wandering medieval "cutter for stone" and the university physician, the chiropractor and the 20th century surgeon as having the same professional interests. There have usually been regulars and irregulars, and even among the regulars there have been the affluent and those on the economic fringe. The group associated with the upper social classes, however, naturally tends to have the greatest resources at its disposal, and it is they who tend to dominate the healing art, whom all tend to emulate. It is they of whom medical history predominantly speaks. Even among the

[1] Bernhard J. Stern, *Social Factors in Medical Progress,* New York, 1927, pp. 20-33.

[2] Lewis Corey, *The Crisis of the Middle Class,* New York, 1935, pp. 230-277.

[3] Richard H. Shryock, "Freedom and Interference in Medicine," *Annals of American Academy of Political and Social Science,* Philadelphia, November, 1938. (Reprint pp. 22-23).

very aristocracy of the profession, of course, we are aware of men like Ramazzini, Benjamin Rush, or Virchow (and the emergence of such figures is the point of this note), but in general one is forced to conclude that physicians have been champions of the *status quo*.

Thus, the primitive medicine man was often closely associated with the richest and most stable elements in the tribe.[4] The Greek physician, while essentially a craftsman, was welcomed socially into the most select and aristocratic circle of Athens.[5] Even in Rome, where he was often a slave, the physician was part of the household of the richest families, and it is reasonable to suppose that, like the valets of the rich today, he tended to identify his interests with theirs. The dominant form of medieval medicine was subordinate to the church; since physicians were clerics, they were agents of the strongest and most conservative institution in medieval society. In the great Scholastic controversy of the Middle Ages between realism and nominalism, doctors tended to be on the side of orthodoxy—realism.[6] Even the great Vesalius, symbol of the forward-looking Renaissance culture—after his courageous younger years—chose to devote his later years to comfortable service to the royal court. The eighteenth century physician is characterized in Molière's *Malade Imaginaire* as the artificial and pedantic sycophant of the upper classes. In 1750 the London College of Physicians, leaders of the British profession, was concerned chiefly with questions of precedence and privilege rather than the social service that science could offer.[7] In the period of the American Revolution, physicians nearly always came from "the best families."[8] Since this was, however, chiefly a revolt of the rising American mercantile class, with which physicians were associated, against the British crown, it is no surprise to find them prominent in the political life of the rebellion.[9] In the nineteenth century, with

[4] Paul Radin, "Economic Factors in Primitive Religion," *Science and Society*, New York, Spring, 1937, Vol. I, pp. 310-325.

[5] William Osler, "Physics and Physicians as Depicted in Plato," *Aequanimitas with other Addresses*, Philadelphia, 1932, p. 69.

[6] R. O. Moon, *Relation of Medicine to Philosophy*, London, 1909, p. 98.

[7] Richard H. Shryock, *The Development of Modern Medicine*, Philadelphia, 1936, p. 50.

[8] H. B. Shafer, *American Medical Profession 1783-1850*, New York, 1936, p. 169.

[9] Isobel Stevenson, "Political Activities of Revolutionary Physicians," *Ciba Symposia*, Summit, New Jersey, July, 1940, Vol. II, pp. 512-519.

the emergence of humanitarianism under the aegis of powerful groups —legislatively supported even by conservative interests—it is not too surprising to find physicians keeping company with progressive factions.[10] But in the twentieth century, with the growing threat to their private interests involved in the extension of medical services which they had once supported, again and again we find physicians aligned on the conservative side of social and political conflicts.[11]

Against this ideology of conservatism, political forces from "the left" have continually exerted their pressure. To the extent that these pressures have been effective, liberal movements in the profession have been stimulated and eventually, after a considerable lag, the profession has been brought around to recognize the standards of the new situation. The character of a liberal movement is that it always develops as a strong reaction against previously widely accepted conceptions. Thus, Hippocrates represents part of a naturalistic reaction at the height of Athenian democracy against the mystical, intuitional type of philosophy in which medicine was couched before him.[12] Paracelsus and his followers may be regarded chiefly as a product of the "social criticism" epitomized in the Renaissance and Protestant Reformation.[13] Puritanism in seventeenth century Britain constituted the social criticism which produced a Sydenham "who ennobled the practice of physic through those qualities of piety, good humor, and good sense, which Edmund Burke declared to be the genius of the English race."[14] The development of a strong labor movement in nineteenth century Germany forced the initiation of health insurance programs, at first strenuously resisted but gradually adjusted to and finally entirely approved by the profession.[15] The same process occurred later in Britain.[16] As for the period when our modern conception of progressive social action

[10] Shryock, *The Development of Modern Medicine, op. cit.*, pp. 206-240.

[11] John A. Kingsbury, *Health in Handcuffs*, New York, 1939.

[12] Arturo Castiglioni, "Aulus Cornelius Celsus as a Historian of Medicine," *Bulletin of the History of Medicine*, Baltimore, Md., July, 1940, Vol. VIII, p. 860.

[13] F. Garrison, *History of Medicine*, Philadelphia, 1929, pp. 203-208.

[14] *Ibid.*, p. 269.

[15] I. S. Falk, *Security against Sickness*, New York, 1936.

[16] The Orrs, *Health Insurance and Medical Care in Great Britain*, New York, 1938, "Foreword" by David Lloyd George.

was born, we may be sure that it took the thought of Bentham and Mill to have produced a Chadwick (though not a physician) and that it took the development of a Social Democratic Party to produce the liberal leadership of a Virchow or a Pettenkofer.[17]

In the contemporary scene the pressure of "social criticism" on medical thought and practise is particularly conspicuous. It is not so much that observation of social conditions, as Dr. Rosen stresses, forces the physician to become social critic. As a matter of fact, the surprise is that this occurs so seldom. It is rather that against its will the profession slowly accedes, after prolonged resistance, to the demands of progressive thought. The mechanism consists first in the recruitment of a minority group to the cause of social dissent—a group with special economic interest in change. Thus, just as labor developed its C. I. O.—and largely because of this as well—medicine gave rise to its "Committee of 430 Physicians."[18] It was no accident that the leadership and a large share of the membership of this group consisted of university men[19] who were apart from the day to day struggle for private profit and the pressure it creates for an individualist, anti-government ideology. The social criticism of the "New Deal" could not fail to exert its influence on medicine, as on all other aspects of American life.

Finally, after bitter denunciation of the principles of this progressive medical "vanguard," the so-called "organized profession" was forced to enunciate some of the same principles in its restatement of policy in 1939. This revised statement represented, of course, no renewed consciousness of social responsibility by the average physician; it can be interpreted only as the product of "pressure from the left," the influence of social criticism. But this was not the end of this influence. Recognizing the growing strength of the popular movement for a "national health program," the organized profession set out to outliberalize the liberals (just as Bismarck had stolen the thunder of the Social Democratic Party in 1883) by organizing a "Physicians' Committee for the Extension of Medical Service."

[17] René Sand, *Health and Human Progress*, New York, 1936, pp. 1-16.

[18] James Rorty, *American Medicine Mobilizes*, New York, 1939, pp. 208-224.

[19] *New York Herald Tribune*, November 7, 1937, p. 1 and p. 26, listing the positions of the physicians subscribing to the new "Principles and Proposals."

The evident purpose of this committee, however, has been to preserve present day *forms* of rendering medical service in the face of its growing extension by extra-professional agencies.

There is no milieu in which social criticism does not exert its influence on medical thought and practises. We are all aware of the tremendous impact of Fascist ideology on German medicine both in its science and its medical service provisions.[20] Such influence as this represents, of course, the ultimate in "social criticism," reaching the level rather of political compulsion. In another direction, the influence of socialism on medicine in Soviet Russia has been equally profound.[21] Even the conspiracies of "counter-revolutionary" cliques in the U.S.S.R., however, recruited their coterie of physicians using their knowledge in the gruesome purpose of murder by disease.[22] The role of social criticism remains powerful, thus, even outside the sphere of modern capitalist democracies.

What lessons can we draw about the future from observing the continuing influence of social criticism on the conservative profession? We have learned that there is always a considerable lag between the development of new instruments of science and their general application, between the emergence of new social situations (e. g., the growth of a large working class with low incomes and poor living conditions) and the development of new social control mechanisms to cope with them (social welfare programs, health insurance, etc.).[23] Slowly, with resistance, in each period the medical profession recognizes the reality of the new situation and takes part in the new mechanisms of social control. And by this participation in continuously new roles, the physician brings medicine to higher levels as a social service. The pressures moving the profession are, of course, economic, technological, and social; and all these are inseparably bound up with the politico-psychological force summarized in

[20] Martin Gumpert, *Heil Hunger*, New York, 1940.

[21] Henry E. Sigerist, *Socialized Medicine in the Soviet Union*, New York, 1937.

[22] Leonard Tushnet, "Murder by Disease," *Annals of Medical History*, Philadelphia, March, 1939, Vol. I, pp. 121-127.

[23] William Ogburn, *Social Change*, New York, 1922, Part IV *passim*. Also: James W. Woodward, "A New Classification of Culture and a Restatement of the Culture Lag Theory," *American Sociological Review*, February, 1936, Vol. I, p. 99.

the conception of "social criticism," but the latter remains a real entity. That which was heretical in one medical generation becomes conservative and commonplace in the next. The fullest development of medicine as a social service and social science,[24] thus, can be realized only when the entire body of physicians is influenced to the level of social consciousness that today characterizes only the most liberal minority. In fact, only by the successful issue of the general world struggle for the preservation and advancement of democracy can medicine progress as a science at all.[25]

[24] Henry E. Sigerist, *Medicine and Human Welfare*, New Haven, 1941, pp. 134-145.

[25] Henry E. Sigerist, "Science and Democracy," *Science and Society*, New York, Summer, 1938, Vol. II, pp. 291-299.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

The *Eighteenth Annual Meeting* will be held in Atlantic City on May 3-5, 1942. The program is not yet filled and a few more papers can be accepted if they are announced to Dr. J. H. Elliott, 11 Spadina Road, Toronto, Ontario, Canada, before *March 15*, 1942.

CONSTITUENT SOCIETIES

The Johns Hopkins Medical History Club

The second meeting of the year was held on February 2, 1942, in the Institute of the History of Medicine of the Johns Hopkins University. The following program was presented:

Chairman, Dr. Alan C. Woods

"The Beginnings of Hospitals in the United States"
Mr. John E. Ransom

"Factors Influencing Medical Research in Philadelphia, 1800-1860"
Dr. Richard H. Shryock

Two exhibits had been prepared for the occasion in the Exhibition Hall of the Institute. Their subjects were *Early Hospitals in the United States* and *Medicine in Philadelphia.*

Society of Medical History of Chicago

A meeting was held on January 27, 1942, in the Crerar Library. The following papers were presented:

"The Surgeon-Anatomists of Great Windmill Street"
Dr. Stewart C. Thomson

"The Evolution of Blood Transfusion"
Dr. Leo M. Zimmerman

The New York Society for Medical History

A meeting was held at the New York Academy of Medicine Building on Thursday, February 5, 1942. The paper of the evening was "The Conflict between Law and Psychological Medicine" by Dr. Gregory Zilboorg.

Section on Medical History of the College of Physicians of Philadelphia

A combined meeting was held with the History of Science Society on February 9, 1942. Dr. Esmond R. Long spoke on "Evolution in the Application of Medical Science."

NATIONAL NEWS

Bowman Gray School of Medicine, Winston-Salem, N. C.

Dr. William G. Harrison, Birmingham, Ala., gave a series of public lectures on the history of medicine at the Bowman Gray School of Medicine, Winston-Salem, November 24-28, 1941. His topics were "Animal Medicine," "Folklore in Medicine," "The Dawn of Medicine in the East," "Early Greek Medicine" and "Classical Greek Medicine."

Woman's Medical College of Pennsylvania, Philadelphia

Medical history has been given a place by itself on the roster of the Second Year Class at the Woman's Medical College of Pennsylvania. Three hours were added giving now a total of 10. The lectures will be supplemented by a series given by the College of Physicians throughout the year where attendance will be required.

Yale University School of Medicine

Prof. Arturo Castiglioni is conducting a series of 8 weekly seminars on the following subjects:

1. The dawn of clinical medicine—relation between medicine, philosophy and art in Greece—the doctrine of Hippocrates—Aristotle as biologist—readings from "Airs, Waters and Places."

2. Medicine and philosophy of Rome—Galen and Celsus—the principles of Christian medicine—readings from Galen and Celsus.

3. The Renaissance—the art, the philosophy, the medical literature—the fight against dogmatism—readings from Fracastorius and Paracelsus.

4. The philosophic doctrine of the 17th century and the influence of Descartes and Bacon on the evolution of medicine—Galileo and the beginning of experimental science—the microscope—Harvey and Malpighi—readings from Harvey.

5. The 19th century—the philosophy of Leibnitz and Kant—the foundation of medical systems—the political revolutions—readings from Morgagni and John Hunter.

6. The beginning of the 19th century—influence of political and social events on intellectual currents—reaction against metaphysical systems—Darwin—the great physiologists—Claude Bernard and Magendie—the cellular doctrine of Virchow—the clinical medicine—Bright and Hodgkin—Addison and the American school—readings from Virchow.

7. The doctrine of microbiology—Pasteur and Koch—the influence of social factors on medical progress—readings from Koch.

8. Clinical medicine based on fundamental sciences—biology and physiology in the 19th century—immunology—William H. Welch and Theobald

Smith—the work of William Osler—doctrine of chemotherapy, Paul Ehrlich—social medicine and hygiene—neo-Hippocratic tendency in modern medicine—readings from Osler.

American College of Physicians

Our president, Dr. Jabez H. Elliott has been invited to give the address in Historical Medicine at the St. Paul meeting of the College in April. His subject will be *John of Gaddesden* and will deal with mediaeval medicine with particular reference to the course of study at Oxford.

American Philosophical Society

The Midwinter Meeting was held on February 13-14, 1942 in Philadelphia and was devoted to *The Early History of Science and Learning in America* with especial reference to the work of the Society during the 18th and 19th centuries. Sixteen papers were presented. Dr. Francis R. Packard spoke on *Medicine and the American Philosophical Society.*

The Society of American Bacteriologists

A session of the 43rd General Meeting held in Baltimore, Md. on December 29-31, 1941 was devoted to the History of Bacteriology with the following papers:

1. "The Program of the Archives Committee"—Barnett Cohen
2. "The Pre-bacteriological Era in Baltimore"—Morris Leikind
3. "Bacteriology in the Early Days of the Johns Hopkins Hospital" William G. MacCallum
4. "Early Experimental Studies in Disinfection"—M. L. Isaacs

An exhibit of books, manuscripts, pictures and objects of bacteriological interest was arranged by Mr. Morris Leikind, mostly from materials of the Johns Hopkins Institute of the History of Medicine.

The New York Academy of Medicine

The 300th anniversary of the death of Galileo Galilei, on January 8, 1642, was celebrated at the Academy by an exhibit of a collection of works and illustrations bearing on his life and accomplishments. The exhibit was held in connection with the delivery on January 22, 1942 of the ninety-second Anniversary Discourse of the New York Academy of Medicine. Dr. A. A. Brill spoke on "The Freudian Epoch."

Maude Abbott Biography

The biography of Maude Abbott by Dr. H. E. MacDermot was published recently by the Macmillan Company of Canada (Toronto, 1941, 264 pages, 11 plates, $2.50). It gives a splendid picture of the life and work of a great

medical woman whom the Association was proud to count among its honorary members.

NEWS FROM LATIN AMERICA

Guatemala

Professor Carlos Martínez Durán who for a number of years has been engaged in studies on the history of medicine in Guatemala (see this Bulletin, 1941, Vol. 9, pp. 354-355) has just completed his book *Las Ciencias Médicas en Guatemala, Origen y Evolución*, Guatemala, 1941, 439 pages. It is a splendid book, profusely illustrated, that gives a very comprehensive picture of the development of medicine in that country. The author can be congratulated most warmly on a great accomplishment.

NEWS FROM AUSTRALIA

From a letter of Dr. L. Cowlishaw, Lindfield, New South Wales, dated November 24, 1941:

> "I have been mostly occupied with various war works but in my spare time have made a start in organizing the Library of our recently founded Royal Australasian College of Physicians of which I am the Honorary Librarian. We propose to make a feature of Medical History and are endeavouring to gather together any records of early Australian medical history before it is too late. At last the University of Sydney has established a Lectureship in the History of Medicine; it is only part time but is the first paid lectureship in the subject in Australia so is a beginning in the right direction. I have been appointed to give these lectures and I have based them very largely on the syllabus published by your Institute. Twelve lectures are given to students in their final year and twelve to students in their fourth year. The attendances have so far been excellent—an average attendance of 150 out of 174 in the junior year and practically 100 per cent. in the final year. The lectures are illustrated by lantern slides and by books mostly from my private library. In addition I have occasional evenings with half a dozen students at my own house."

Supplements to the Bulletin of the History of Medicine

The Editor of the Bulletin of the History of Medicine regrets to announce that he will not be able to launch the series of Supplements to the Bulletin because there seems not to be sufficient interest in the plan. The time, moreover, is not opportune for such a new venture at a moment when many of our members are being called to the armed forces. The plan is not given up definitely since there is a real need for an organ of publication of medium-sized studies; it is merely postponed until a more propitious time.